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DISCOURSES

ON THE

ELEMENTS

OF

Therapeutics and Materia Medica.

BY

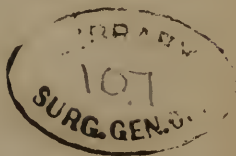
N. CHAPMAN, M. D.

PROFESSOR OF THE INSTITUTES AND PRACTICE OF PHYSIC AND CLINICAL
PRACTICE IN THE UNIVERSITY OF PENNSYLVANIA:
PRESIDENT OF THE PHILADELPHIA MEDICAL SOCIETY, &c. &c.

"To communicate what I have tried, and leave the rest to others for
farther inquiry, is all my design in publishing these papers."

NEWTON.

VOL. I.



PHILADELPHIA:

PUBLISHED BY JAMES WEBSTER, NO. 10, NORTH EIGHTH ST.

W. Brown, Printer, Prune street.

1817.

ANNEX
Mat. Med.

District of Pennsylvania, to wit.

BE IT REMEMBERED, That, on the eighteenth day of October, in the forty-second year of the Independence of the United States of America, A. D. 1817, N. Chapman, of the said District, hath deposited in this office the title of a book, the right whereof he claims as proprietor, in the words following, to wit:

“Discourses on the Elements of Therapeutics and Materia Medica. By
“N. Chapman, M. D. Professor of the Institutes and Practice of Physic and Clinical Practice in the University of Pennsylvania: President of the Philadelphia Medical Society, &c. &c. To communicate
“what I have tried, and leave the rest to others for farther inquiry,
“is all my design in publishing these papers. Newton.—Vol. I.”

In conformity to the act of Congress of the United States, entitled “An act for the encouragement of learning, by securing the copies of maps, charts, and books, to the authors and proprietors of such copies, during the times therein mentioned.”—And also to the act entitled “An act supplementary to an act, entitled ‘An act for the encouragement of learning, by securing the copies of maps, charts, and books, to the authors and proprietors of such copies, during the times therein mentioned,’ and extending the benefits thereof to the arts of designing, engraving, and etching historical and other prints.”

D. CALDWELL,
Clerk of the district of Pennsylvania.

TO JOHN SYNG DORSEY, M. D.

PROFESSOR OF THE MATERIA MEDICA IN THE UNIVERSITY OF PENNSYLVANIA, &c. &c.

MY DEAR SIR,

HAVING adopted the ensuing work as the text book to your lectures, there would seem to be a propriety in my inscribing it to you. But, independently of such consideration, you have a claim to this mark of my respect and attachment, in the very long and intimate friendship which has subsisted between us.

Eagerly do I seize the present occasion, to bear testimony to your distinguished ability as a teacher, and to declare how greatly, in my opinion, you contribute to uphold the reputation of our School, by your diligent and successful exertions.

With my best wishes,

I am, dear sir,

Very faithfully,

Your friend,

N. CHAPMAN.

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PREFACE.

CALLED, very unexpectedly, in the year eighteen hundred and thirteen, to teach the *materia medica* in the University of Pennsylvania, I entered on the enterprize with none of the advantages which would have been derived from the previous study of the subject with this precise and definite view. After having delivered three courses of lectures on this science, I had the honour to be translated to the chair of the Institutes and Practice of Medicine in the same School. As soon as this event took place, I was pressed by the class that had formerly attended me, with an earnestness which I could not well resist, to prepare a work on the *materia medica*, or, in other words, to print my lectures. Engaged since, in the execution of the weighty duties of my new appointment, and in the still more oppressive exercise of an arduous profession, I could command little or no leisure for such a purpose. Except, therefore, the retrenchments which were required, to reduce the work to the ordinary dimensions of a Text Book, and a slight revision of a few passages, I now commit my lectures to the press, in the state in which they were read, without

any alteration or amendment, in the matter or style. To those, however, who heard them in the delivery, they may probably appear to have sustained an injury, in the loss of the facts and illustrations, thrown out in the extempore digressions, in which it is my habit very freely to indulge.

No one can be more sensible than myself, how much the work suffers by this premature publication. But, it could not be prevented, without violating the promise to which I have alluded, and disappointing the purchaser of the manuscript, who had become exceedingly impatient of any further delay. Distinct from the motives I have assigned, I confess, that I was also influenced somewhat by the persuasion, perhaps a vain one, that the work, comparatively imperfect as it is, might prove not altogether unacceptable to the public, and particularly to the students and practitioners of physic, in the United States. It will, at least, be useful to my class, as exhibiting more than can elsewhere be met with, of my own speculative and practical views. Numerous, too, as are the treatises on the *materia medica*, there is no one which I have seen, precisely on the plan of mine, uniting to some of the more useful pharmaceutical details, copious practical instructions, adapted to the management of diseases, modified, as they confessedly are, by the peculiarity of the state of society, and climate, of our own country.

In every science, some system is required, and

in no one, perhaps, is it more necessary, than the *materia medica*. Consisting of an immense collection of diversified materials, which are not always obviously related, it would, without a perspicuous arrangement, be greatly defective in practical utility. After much deliberation, and a full comparison of the several plans of classification that have been proposed, I was induced to prefer the one which I have adopted. But I am now persuaded, that a much more natural, as well as useful arrangement of medicines, might be made, on the principle of their affinities to the several systems of the body, and should an opportunity be ever afforded me, it is the one which I shall attempt to establish.

It will be perceived, that, instead of noticing in detail, as is usual with the writers on this department of physic, every individual article, I have dwelt more on the class to which it may be attached, pointing out the mode of operation of the whole congeners, or kindred assortment, and their peculiar relations to disease. By thus treating the subject, I cannot help thinking, that much greater order has been attained, and no little perplexity and tedious recapitulation, avoided. But still, I have not omitted to give some account of each substance separately, to indicate its more important pharmaceutical preparations, and its medicinal virtues, when these may be different from others of the same class, together with its dose, and manner of administration.

I have also subjoined, from a small work, which has recently appeared, a list of *incompatible* substances, or such as, when combined, produce a change of composition. In doing this, I was fully aware, that in many cases, these very changes give rise to new products, of increased efficacy: still, however, great mischief often ensues from a want of an acquaintance with the relative affinities of the articles of the *materia medica*, without which neatness and precision in our prescriptions; are utterly unattainable. These general discussions on the *modus operandi*, and practical application of the several classes of medicines, are denominated Therapeutics, a province of our science exceedingly interesting, and which has been hitherto strangely neglected.

There was, here, a very wide field open to me. I have sometimes been led into physiological enquiries, and, still oftener, into discussions relative to the general nature of disease, or the peculiar character of the affection, directly before me. Disquisitions of this sort, though they may seem to trench upon another department, must be allowed as being indispensable to a clear and intelligible application of our remedies. Could it, indeed, be possible to convey a distinct conception of the various uses of mercury, opium, bark, or of any active article of the *materia medica*, were we not permitted the privilege of entering so far into the history of

the diseases, to which the medicine might be appropriate, as to enable us to point out the exact circumstances of the case in which it may be beneficially prescribed? But, liberally as I have employed this license, I am afraid that I have not always succeeded in my object, and certainly, in many instances, by the apprehension of being accused of unwarrantable digressions, I have so narrowed my limits, as to do great injustice to my own opinions, and modes of practice.

As respects Nosology, I have not adhered, with strictness, to any one existing system: all attempts of this nature are marked, in my opinion, with so many absurdities, and false collocations, as to forfeit every claim to an entire and indiscriminate adoption. My own arrangement of diseases, which is according to their more prominent seats, I wished more time to perfect and mature, before I offer it to the public. But though, in this instance, heedless of the technical formalities of the Schools, I have not deviated from the established nomenclature of the science, nor ventured to disturb the language which seems now to be settled by common consent, and consecrated, as it were, by universal usage.

By a recent writer, the *materia medica* has been compared to an inquisitive traveller, who, collecting every thing which interests him, on his journey, sees his baggage increase every moment, in bulk, and feels himself frequently obliged to stop and ex-

amine it, in order to free himself from the useless articles, or to arrange, in a more convenient order, those which he cannot dispense with, that they may occupy less room, and the carriage, or the employment of them, be more easy and commodious. 'This is a very happy and correct illustration, since surely, never was a science, to continue the allusion, so overcharged with superfluous lumber, as the *materia medica* is in its present state.

As such is indisputably the case, I have, with intrepid decision, endeavoured to cleanse this Augean accumulation, by expunging whatever substances are known to be inert or redundant, and to retain only such as, from their powerful or efficacious properties, are emphatically denominated the heroic remedies, or are confessed to be of unequivocal utility in the treatment of diseases. The practitioner who may wish information relative to the trite or subordinate medicines, I am content to refer to any one of the common Dispensatories. But, while thus boldly practising a system of expurgation with regard to the *materia medica*, I am by no means disposed to close the science against the introduction of new articles, or such improvements as may be afforded by further enquiries, or more correct views. It will accordingly be found, that I have enlarged its boundaries by the addition of several medicines, chiefly the indigenous productions of the United States, and now and then, by expatiating

more fully than heretofore has been done, on the properties and uses of some of the older articles.

Having expressly treated, in one of the subsequent discourses, of the improvement of the *materia medica*, I shall not here retouch the subject, interesting as it is in every view, and greatly as my reflections upon it might be extended. Yet, I cannot forbear from again pressing upon our physicians, who are so advantageously distributed for the purpose throughout the country, the strong claims which the profession, as well as the cause of humanity, has upon them, to devote more attention to the study of our native plants. Enough, surely, has been done in this field of exertion, to afford the amplest encouragement, and to facilitate further researches.

To what I have elsewhere noticed, as already accomplished, may now be added a work on the American *materia medica*, recently issued from our University, which, in some respects, may challenge a comparison with any similar production of Europe. It affords me pleasure to announce, that an undertaking somewhat of the same nature in the School of Boston, is commenced, by one of the professors, who, I know, will bring to it qualifications that can scarcely fail to insure it success.

These are enterprises of the highest utility, to the interests of medicine, and which are well calculated, by reflecting the lights of science from the new upon the old world, to redeem, in part, the

heavy literary debt we have incurred, and to vindicate the insulted genius of our country, from the contumelious reproaches, so long and disgracefully endured by us.

PHILADELPHIA, September, 1817.

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ELEMENTS
OF
MATERIA MEDICA
AND
THERAPEUTICS.

DISCOURSE I.

History of the Materia Medica.

MEDICAL Science, in its present state, is an accumulation of such extensive and diversified knowledge, that it has been found convenient to divide it into several distinct departments. My object is, to treat of that province of it, denominated the *Materia Medica*, or in other words, to deliver some account of those means which are employed, either in the prevention or cure of diseases.

No branch of medicine is more copious than this, or which, perhaps, ought to be considered of greater importance. As well, indeed, might the mechanic attempt to carry on his operations without an acquaintance with his tools, as we to exercise our profession, ignorant of the properties of our remedies.

Notwithstanding the number of histories of the science already extant, I shall present, as preliminary to my main design, a concise view of the rise, progress, and existing condition of the *materia medica*.

The rudiments of this department of medicine, were probably co-eval with the very existence of the species. It can hardly be supposed, that uninterrupted health was ever among our happy privileges, and mankind, always liable to accidents and diseases, would naturally seek the measures of mitigation or relief. The rudest tribes of savages are found, accordingly, to have their remedies and modes of cure, often rash, violent, and injudicious, though sometimes discriminated with precision, and adapted with dexterity and skill.

Commenced, however, as it may, the *materia medica*, humble in its origin, has gradually grown and become improved, by the contributions of vulgar ignorance, by fortuitous discoveries, by empirical experiments, and, in some instances, by well regulated inquiries.

Anterior to the civilization of Greece, medicine is a dreary waste, containing little to excite curiosity, or to reward the trouble of research. Though it had been previously cultivated in Egypt, it does not appear to have participated, to any extent, in the general improvement of the arts and sciences, or to have kept pace with the polish and refinement of that country. Not, indeed, till the appearance

of the illustrious character, on whom posterity, by common consent, has bestowed the enviable title of "Father of Medicine," does the subject assume a shape to merit our attention. Endowed with a genius vigorous and original, he cleared the profession of the incongruities of empiricism, and gave to it much of the order and perspicuity of scientific arrangement. Every department of physic was more or less enriched by his discoveries, or reclaimed by his judgment. The *materia medica* is largely indebted to him. Not a few of our remedies are the result of his observations and inquiries, and by his writings we are enabled, pretty accurately, to estimate the state of the science at the time.

After the age of Hippocrates, little seems to have been done for any department of medicine in Greece. Of the *materia medica*, especially, the chief promoters were probably the philosophers, who cultivated natural history, and hence, the accessions to it were indirect, and exceedingly small and defective. Next, therefore, we are to trace the progress of the science in Rome.

It is well known, that this extraordinary people had long dazzled the world with the splendour of their military achievements, and excited astonishment by the extent of their conquests, before they were distinguished by the polish of civilization, or the culture of letters. Exclusively devoted to the profession of arms, to be adroit in the art of destruction, was deemed by them the highest of hu-

man attainments. But, towards the commencement of the Christian era, when they had subdued the fairest portions of the globe, and in some degree allayed their avarice of dominion, the ferocity of their martial character began to subside, and a spirit propitious to the more liberal pursuits, was manifested. Attracted by the wealth and renown of their mighty city, the learned and ingenious of every country, resorted to it. From Greece, "the native seat of the muses," she gradually imported much that was excellent, in the arts, ornamental or useful, and in literature, science, and philosophy. Nevertheless, medicine was little cultivated. Conceiving that their superiority over other nations was owing to a retention of an unmitigated ruggedness of character, it became a part of their policy to check, by legal prohibitions, whatever had a contrary tendency, and on this account, the introduction of those arts was still resisted which soften and embellish manners, alleviate the sufferings of our nature, minister to the comforts, or smooth the asperities of life. But corrupted at last, by the accumulated wealth which flowed in upon them, luxury and indolence ensued, and with these vices, a train of diseases, of which they are the fruitful source. The necessity of procuring men skilled in the art of healing being now generally felt, the injurious restrictions relative to the profession of medicine, were in consequence removed.

Of their writers, among the earliest of any consi-

deration, was the chaste, the elegant, the classical, Celsus, who lived in the second reign of the imperial dynasty. Disputes have arisen, whether he pursued medicine as a profession, or only attended to it as a part of liberal science. Be this as it may, the work of his which has descended to us, is unrivalled by antiquity, and will reward the most studious perusal. An eminent modern teacher emphatically enjoins on every student "to keep Celsus in his hands by day and by night."

As respects the *materia medica*, more information may be derived from him than from any of his predecessors. He does not professedly treat the subject, but the view which he exhibits of it is very satisfactory, up to the time in which he wrote.

In the succeeding century, no province of medicine received any material improvement. Engaged in perpetual controversies on points of doctrine, its cultivators have bequeathed to us little else than a mass of vague and unintelligible hypotheses. Two writers, however, on the *materia medica*, at length appeared. These are Dioscorides and the elder Pliny, who, though perhaps they ought to be excepted from this harshness of criticism, are now consulted rather as objects of curiosity, than for the purpose of gaining, in the present comparatively enlightened state of the science, any sound or useful information.

At no distant interval, came Galen, one of the most remarkable characters whom our science has

produced, whether we regard the extent of his learning, or the universality of the homage which he commanded. During thirteen hundred years, his opinions were received as oracular authority, wherever medicine was cultivated. But so long and uninterrupted a reign, must in part be ascribed to the operation of those general causes, which, we shall presently see, extinguished the lights of learning, and enveloped Europe for a portion of the time in the darkness of barbarism.

As Galen wrote copiously on the *materia medica*, it was to be expected, from his vast erudition and practical experience, that this subject would have been considerably benefitted by his exertions. But in this respect we are disappointed. The knowledge which he affords us is exceedingly encumbered by spurious theory, and obscured by the complexity of his prescriptions.

After his death, the progress of medicine may be considered as having terminated in Rome. Towards the close of the second century, this stupendous empire, which had proudly ruled the world, and where the human character had appeared to the greatest advantage, began to exhibit the melancholy spectacle of decay, and was ultimately overthrown entirely by the successive attacks of different tribes of uncivilized nations. Not content with the conquest and plunder of the country, these ruthless invaders destroyed, in their fell career, all the monuments of taste, literature and science,

which had been so splendidly raised, and, after effecting this state of desolation, carefully repressed the spirit of intellectual cultivation, lest it might enfeeble that martial energy which they so greatly prized.

During this turbulent age, so far from any progress having been made in the cultivation of science, or the correction of taste and manners, even the vestiges of ancient learning and civility were nearly lost. Thus neglected, the human mind was depressed into the profoundest ignorance, or shot into the wild licentiousness of savage nature. Europe, accordingly, did not produce, for a long series of time, a single work deserving of criticism, nor one solitary discovery or invention. Even the scattered relics of literature, which floated from the wreck of the western into the eastern division of the empire, maintained only a temporary and feeble existence, uncherished and unproductive, and then sunk under the overwhelming inundations of the Saracens.

As soon, however, as the violent dispositions of the barbarous enthusiasts, to whom I have just alluded, were lulled by a relaxation of religious ardour, by a satiety of conquests, and a full indulgence of the lust of plunder, the arts and sciences began to be cherished, and medicine was particularly patronized.

By the middle of the ninth century, we find that establishments for the teaching of it were liberally

endowed, and many of the Greek writers translated. Physicians were now rewarded with an unusual elevation of rank and emolument. But our science, even with such munificent encouragement, did not succeed. The only branch of it which is at all indebted to the labours of the Arabians, is the *materia medica*. Dwelling in a region rich in active plants, in spices, in aromatic gums, the medicinal properties of some of these substances they detected, and applied to the treatment of diseases. The mind of Europe, which we have seen plunged into the deepest lethargy, did not suddenly emerge, or recover its tone. The presages of its renovation were long in accomplishment. This slow advancement has very properly been attributed to the pernicious operation of the feudal system. The incessant contentions of its petty tyrants, not only interrupted the quietude so essential to literary pursuits, but an ignominious vassalage was imposed, which palsied the moral energies below the capacity of vigorous exertion. As has been truly said, the lily and the bramble may grow and flourish together, but genius and slavery admit not of this social proximity. Wherever the highest order of intellectual excellence has been attained, there we have found neither the turmoils of anarchy, nor the fetters of despotism. To shoot with luxuriance, and bring to perfection its choice productions, genius should be placed in a soil secured from disturbance by the provisions of a regular government,

and sustained by the protecting care which such a government is alone competent to afford. But while the austerities of feudal tyranny prevailed, there was not the shortest repose from the distractions of war, nor the least defence against violence and oppression. The nobles had become arrogant by the practice of command, and the people dastardly from the habit of submission.

Of the causes which conspired to abolish this state of confusion and servitude, and to introduce order, regularity and freedom, the Crusades have generally been thought the most leading and efficacious. They aroused Europe out of its torpor, and engaged it in those enterprises which inspire activity, and invigorate intellect. Men, in every gradation of society, were infected with the wild enthusiasm which originated these singular expeditions. Composed of all the nations of Europe, armies were seen marching in the delirium of their zeal, pledged either to redeem the Holy Land, or die at the tomb of Christ. In prosecuting this romantic project, the Crusaders were happily obliged to traverse countries whose institutions and customs were superior to their own. These could not fail of exciting emulation. Captivated by the charms of literature, the more enlightened of them collected some of the classical writings and many of the Arabian productions, and returned with a taste improved, and views widened and liberalized. Dispositions in every respect so auspicious were strengthened and

confirmed by the invention of the art of printing, which, increasing the number, and reducing the price of books, diffused more widely the light of knowledge, and quickened the speed of moral improvement.

But the efforts of literature at the dawn of returning civility, were very unprofitably directed. They were turned either into the course which produces the wild and irregular sallies of the imagination, or were lost in the mists of metaphysical intricacies, and the mazes of scholastic theology. The science of medicine appears to have solicited little esteem.

In the succeeding age, however, the study of alchemy, or the art of transmuting base metals into gold, and the still more ridiculous attempt to invent an elixir by which disease should not only be cured, but life prolonged beyond the ordinary term, engrossed the attention of most of the learned and ingenious. Experience has shown the futility of these pursuits. But intense exertions, in whatever way employed, are seldom wholly unproductive; and accordingly, in the eager chase of these illusions, contributions of real value were occasionally made to the *materia medica*, and especially to chemistry.

Medicine moved on in this devious career, till about the middle of the fifteenth century, when it underwent a revolution which had considerable influence on our department. At the period alluded to, the medical science of Europe was wholly por-

rowed from the Arabians ; but on the conquest of Constantinople, the last lingering monument of imperial grandeur, many of the erudite Greeks fled into Italy, and carried with them the ancient writings.

The doctrines of Galen now regained their former ascendancy. They were destined, however, speedily to fall under the formidable attacks of the chemists. The difference between these rival sects related both to theory and practice ; but chiefly turned on the use of the powerful remedies which the latter derived from the processes of their art.

In this contest, the leader on the part of the opposition was the celebrated Paracelsus, who, though destitute of regular learning, had that sort of audacious genius, which is peculiarly calculated to sap the foundation of existing systems, and to prepare the way for the reception of unexpected innovations. The cures effected by the energies of his remedies, and the confident manner in which these were announced by himself and his disciples, procured with many the adoption of his opinions, and a wide dissemination of his popularity and fame.

Elated by success, the chemists urged with fresh ardour their analyses, and while they rendered their theories contemptible by an extravagance approaching to fanaticism, continued to elicit, by the operations of the laboratory, medicines of the greatest importance.

Nor was this the only source, from which our science was enriched, at this time. The art of na-

vigation having recently received its memorable improvement, maritime enterprise was emboldened to extend its researches, and the new world, now revealed to an adventurous spirit, poured into Europe its treasures and its drugs.

Cotemporary, or nearly so, with these events was the discovery of the circulation of the blood, which imparted a vigorous impulse to medicine, and changed very materially its character and aspect. But the light shed by it on the animal economy, instead of leading, as was anticipated by the sanguine enthusiasts of the moment, to some correct and permanent conclusions, which might place the science on a basis, never again to be shaken by the changes of opinion, served only to redouble the rage for speculation, and to exacerbate the temper of controversy.

As having no direct leaning on our subject, it would be improper in me to dwell on the series of conflicting hypotheses, resulting from those angry contentions, many of which were the progeny of an unnatural alliance between medical science and the prevalent branches of knowledge.

In every age, medicine has been corrupted by the ambition to apply to it the general theories, or particular views of the other sciences. Its early history shows that it was constantly subjected to the dominant philosophy of antiquity. When chemistry triumphed, we have seen its reasonings interwoven with every set of opinions, and shaping

every form of practice. Next mathematics came into vogue, and the functions of the living system, as well as the operations of medicines, were explained on pure geometrical principles. After a while, however, the reign of metaphysics ensuing, we had all its subtleties, and abstractions in the place of the preceding parade of data, postulates and demonstrations.

Thus stood our science at the dawn of the eighteenth century, when three distinguished characters arose, to subvert the authority of their predecessors, and to share among them the empire of medicine. These were Stahl, Boerhaave, and Hoffman. Each of their systems made a considerable impression on the *materia medica*, and must therefore not be entirely overlooked in the present review.

That of Stahl, which is rather of the earliest date, evidently grew out of those metaphysical discussions to which I have alluded. It assumes as a fundamental principle, that the *rational soul* of man rules his body in health and disease. No period has perhaps existed, in which some indistinct notion has not been entertained of a power resident in the animal economy, by which it is enabled to resist injuries, and to correct or remove the morbid derangements, to which it may be exposed. This mysterious faculty has received various names, as the impulsive principle, the Soul, or *Anima Medica*, the *Archæus*, the *vis conserva-*

trix, et medicatrix naturæ, the vital principle, the nervous power, and most commonly the vague appellation of *Nature*. Giving to this faculty more definite attributes, he strenuously maintained that it is independent of any physical necessity, and operates by virtue of its intelligence. Theoretical views like these, must inevitably have dictated a practice cautious, feeble, and irresolute. Confiding in the wisdom of the soul, the disciples of this sect were accordingly vigilant in observation, and acute in discernment, but averse to the use of active remedies, lest they might interfere with its sanative designs. To them, we are peculiarly indebted for the art of curing diseases by expectation, and their practice has, with some propriety, been called “a meditation on death.”

No one could have been better prepared than Boerhaave to construct a medical system. To a mind calm, reflecting, and discriminative, he united the widest range of erudition, and the most patient industry. All the branches of knowledge auxiliary to his profession he had diligently cultivated. These advantages, however, did not exempt his speculations from the grossest errors.

As a genuine eclectic, he seems, in framing his system, to have been anxious to select from every source the best materials, and to blend these with such as his own genius might supply, into one whole, exhibiting the aggregate truths of the science. But this, like most finely wrought schemes,

did not succeed. Excellent as was the mechanism of the work, the incongruity of the parts could not be concealed. To harmonize the contrarieties of medical doctrines was indeed a task as impracticable as to arrange the fleeting vapours around us, or to reconcile the fixed and repulsive antipathies of nature. Boerhaave adopted, in the utmost latitude, the prevailing mechanical and chemical philosophy; and his system bears its full impression on the face of it. Neglecting the peculiarities of vitality, he represented the animal body pretty much as a machine controuled by the laws of hydraulics in the circulation of its fluids. Medicines he supposed to operate chiefly by chemical combinations.

The system of Hoffman differs very widely from those of his two cotemporaries. Discerning the errors of the humeral pathology, he early rejected it. Whatever changes the fluids undergo, he alleged were produced through the intervention of the solids, and denied, that they exercise any direct or essential influence, on the healthy or morbid states of the body. Believing that the living system is regulated by a vital principle, he retains little of mechanical or chemical reasoning, but, very properly seeks for explanations of the phenomena of the animal economy in the agency of that principle exerted through the primary moving powers. With his subordinate notions relative to spasm, we have nothing to do.

In tracing those systematic arrangements of me-

dical knowledge, which had any decisive influence on the *materia medica*, we must not entirely overlook that of the original and eccentric Brown, “the child of genius and misfortune.” My intention, however, is not at all to detail the well known doctrines of the “*Elementæ Medicinæ*.” It will be quite sufficient for my purpose, to remark, that this intrepid theorist divides all diseases into two classes, *sthenic* and *asthenic*, or of increased or diminished excitement, and that he maintained every agent which operates on the living body to be a stimulant, having an identity of action, essentially differing only in the degree of its force.

Whatever may be the merit of these views in some other respects, a point however, exceedingly disputable, they could not fail to produce the worst effects on the *materia medica*. Nothing can be less true than the notion which is here inculcated of the powers and *modus operandi* of medicines, or more mischievous than the abridgement of our remedial resources, to which such an estimate directly leads. Let it be conceded, that diseases really consist in graduated proportions of excitement, and that our medicines are weaker or stronger stimulants only, it follows, that a practitioner might sally forth to attack the foes of human health and happiness, armed alone with the lancet in one hand, and a bottle of alcohol in the other, to reduce vigor, or remove debility, as the case might demand. Extraordinary as this may seem, it is still

a legitimate deduction from the premises, which were carefully laid down and so often elaborately defended, by the disciples of this sect, and which they actually illustrated by their practice. But more of this hereafter.

Leaving now, these bold attempts at medical generalization, we revert to the more direct history of our department. It can hardly be supposed, that, during the last century, when physical science was so studiously cultivated, the *materia medica* should remain stationary. No section of medicine is insulated, and whatever light is thrown upon one, soon becomes reflected over the whole. The improvements which took place in the departments, even the most distantly related to it, were therefore not without effect. As physiology and pathology, the laws of the animal economy in a healthy, and the doctrines of its deranged condition, were further elucidated, we acquired more accurate views of the operation of medicines, and a happier manner of adapting them to the management of diseases. But, it was from those branches which are its immediate kindred, that the *materia medica* derived its principal acquisitions. Every province of natural history has been tributary to its extension. To the chemistry of modern times especially, we owe the highest obligations. Correcting its own errors by the surest methods, it has also extended the spirit of reformation to our science, and while it has armed practitioners with some of the best

means of combatting disease, has not only expunged others which were inert, but inculcated the art of preparing and administering remedies with infinitely more neatness, precision, and efficacy.

During the period under review, much has also been written expressly on the *materia medica*. We have distinct dissertations on many of its active articles, in which the properties of the substance are carefully investigated, and not a few works encompassing the whole science. It is not my intention, at this time, to give any minute account of these productions, having hereafter occasion very repeatedly, to recur to this subject. Now, I shall merely mention, that among the numerous works the science claims, there are three, which by reason of their superior merit, are entitled to be singled out, and noticed. These are the celebrated systems of Lewis, Cullen, and Murray.*

The Edinburgh professor was decidedly the most distinguished medical personage of the age in which he lived. He occupied a larger space. His fame was more diffused. Deficient, perhaps, in that transcendent genius which reforms every thing by bold and general views, he had, to compensate it, the faculty of careful observation, and an uncommon share of diligence, sagacity, and judgment. The character of his mind is conspicuously dis-

* I allude here to the work of my friend Dr. Murray, of Edinburgh. The "*Apparatus Medicaminum*," by an author of the same name, I have never been able to procure.

played in all his writings, which, though not destitute of speculation, are eminently practical, and have tended, in the greatest degree, to the establishment of true and rational medicine.

Yet, his work on the *materia medica*, is not without defects, and by the changes which medicine, since its date, has undergone, is become in a certain degree, antiquated, and even obsolete in many of its parts, in theory as well as practice. As presenting in narrower limits, a much more correct view of the existing state of the science, reformed as it has recently been by new discoveries and improvements, the treatise of Murray is to be preferred.

No notice has hitherto been taken of the efforts in the United States to advance the *materia medica*. These, owing to the long neglect of the subject, are comparatively slender and imperfect. It is true, the naturalists, distributed through the different sections of the country, have, at no time, been altogether heedless of its physical productions. But, their inquiries being directed rather to the botanical history than medicinal properties of plants, very few important accessions were made to the stock of remedies.

As soon, however, as our Medical School began to flourish, an attachment was awakened to the science, and it has since been considerably enriched from our native stores. Many of our graduates have signalized their talents by the investigation.

in their inaugural dissertations, of no inconsiderable number of the indigenous medicinal plants.

But the credit of leading in this new career is indisputably due to my predecessor in the chair of the *materia medica*. Confessedly, it was by him, that a real taste for the natural sciences was created and diffused in the United States, the charms and utility of which, were ardently and eloquently enforced in his lectures, in his conversation, and by his writings. Too early has he been removed from the sphere of his labours. Emulating, however, his example, those who have succeeded to him in the School, in the several departments of the *materia medica*, natural history, and botany, seem resolute to repair his loss, by pursuing the same radiant path of duty and usefulness.

DISCOURSE II.

On the Improvement of the Materia Medica.

CONSIDERATIONS arising from a due estimate of its importance, have led, in every age, to the assiduous cultivation of the materia medica. Long before principles were introduced into medicine, or even the common rules of practice established, no small attainments had been made in this particular department. But studiously as we have endeavoured to promote its cultivation, the materia medica, as a section of medical philosophy, is still exceedingly crude, wild, and unregulated.

It is true, we have a prodigious collection of remedies, chosen however with little discrimination, and as carelessly investigated, arranged obscurely, and ministered without much accuracy or precision.

In treating a science so defective, it seems to me proper that I should point out the mode by which, in my opinion, it may be prosecuted with the greatest success. To this discussion, I am the more inclined, from the singular advantages which our country holds out to the extension and improvement of this branch of medicine.

Nature has cast the new world in her largest mould, and given to all its productions corresponding proportions. No instance of stinted, or niggardly creation exists. Every where, we behold

the evidence of a physical luxuriance, equalled only by the moral and intellectual energies of the people. Even our diseases partake of the same character, and have a violence, which exacts for their cure either new means, or original combinations of vigorous practice.

But most evils have their correctives, and it would seem especially to be a part of the benevolent scheme of Providence, that the malignant distempers incident to a climate, should be invariably associated with their appropriate remedies. If this be the case, can there be a nobler field to excite or reward exertion, than that which lies before us? The immense regions which we claim, though hitherto little explored, are known to be exuberant in the most active vegetables. It is more than probable, that on some of the Alpine heights, or along the margin of those bold streams which pervade our wide spread continent, there blooms many a plant, whose virtues, now flung on the "desert air," may be peculiarly adapted to the gigantic forms of disease, and capable of reducing the lengthened catalogue of the *opprobria medicorum*.

To aid those who may be disposed to enter on so useful an enterprise, I shall now proceed to review somewhat in detail, the various means which have been suggested, in order to acquire a knowledge of the medicinal virtues of substances, and to show how far these are applicable to the purpose.

Of the means alluded to, it is reasonable to suppose, that the sensible qualities of the article, by which is meant its odour, taste and colour, were the first employed. To these criteria we are obviously led by a very strong instinctive impulse. No one can pick up an unknown plant or substance with a view of ascertaining its properties, without at once subjecting it to the decision of one or the whole of his senses. To the rude and educated man, as well as to the brute creation, it is incident to practice this mode of investigation. But, whatever advantages the savage or the lower animals may derive from the acute preceptions of the organs of sense, we are indebted very little to this source in our medical researches.

The utility of smell is limited chiefly to vegetables, as few animal or mineral bodies betray their qualities in this way. Most generally, pleasing smells, as we are told, are salutary, and nauseous ones injurious. But pleasing and nauseous are relative terms. The odour which is grateful to one person, may be to another loathsome and disgusting.

It is alleged that the tastes of substances have a much more intimate connection with their medicinal properties than odours. This it perhaps true. Tastes, however, like smells, are so infinitely varied, that an accurate discrimination is not easy to be made. Much of what I have said in relation to the one, is equally applicable to the other. I shall

therefore merely remark in addition, that certain medicinal virtues are found pretty constantly associated with peculiar tastes and odours, and will lead to a tolerably satisfactory conclusion where these are simple and unmixed. But, if compounded, which is usually the case, we ought always to hesitate in deciding, as amidst the confusion of blended sensations, there can be nothing certain or definite.

By a writer of no ordinary authority, it has been maintained, that such substances as do not affect the taste or smell, or only in a slight degree, may be considered as inert and useless. To this rule, which is indisputably of very extensive application, there are not wanting some striking exceptions. Not to mention other conspicuous instances, the corrosive sublimate, the arsenic, and the poison of serpents, are equally insipid and inodorous.

As a test of medicinal virtues, it seems to be admitted, at present, that colour is entitled to less confidence than either of the two preceding criteria. But a different opinion was once entertained, and especially by the celebrated naturalist of Sweden, as is expressed in his memorable aphorism: "*Color pallidus, insipidum, viridis, crudum, lutens, amarum, ruber, acidum, albus, dulce, niger ingratum indicat.*"

Each of these positions, though true in the main, is to be recieved with many limitations, and on this

account, the mere circumstance of colour, will always prove a devious and precarious guide.

In the enthusiasm of that period, when chemistry, as a novelty, solicited attention, it was imagined that the processes of the art would illustrate every physical obscurity, and among the rest, reveal the medicinal properties of substances. During the reign of the humeral pathology, these extravagant expectations were sanguinely indulged. They are no longer entertained. As applied here, chemical resolution cannot be trusted. Experiments have fully demonstrated, that articles widely discrepant in their general nature, as aliments and medicines, the most salutary food, and the rankest poison, exhibit, on analysis, nearly the same results. This indeed holds so generally true, that the virus of the viper, and the mildest mucilage, constitute no exception; as, when resolved into their elementary principles, they are precisely analogous.

Chemistry, however, in other respects, is of the utmost importance to the *materia medica*. Copious in resources, this noble science explores all nature, and educes from each province the most valuable remedies. The animal, the vegetable, the mineral kingdoms, it lays under contribution to our purposes, and by it we are moreover taught neatness and precision in our pharmaceutical preparations.

As soon as botany assumed a regular shape, and was reduced to system, it came to be observed that many of the plants which had been arranged toge-

ther from their agreement, or affinity in botanical characters, were also allied in medicinal virtues. Nature having established, in not a few instances, a connection of this sort, it was presumed that she had done so universally. Classifications were accordingly made on this hypothesis, and to a certain extent, they proved to be correct. There is especially one of the great divisions of Linnæus, embracing a very large number of plants, which scarcely exhibits an exception. But so far from this coincidence prevailing throughout his classes, it frequently does not obtain even in the species of the same genus. As proofs to this effect, I may mention the *cucumis melo*, or common melon, and the *cucumis colocynthis*, or colocynthe of the shops. Nor is the difference less in a medicinal and dietetic view between the *solanum tuberosum*, or potatoe, and the *solanum nigrum*, or deadly nightshade. Examples of this kind, it would be easy to multiply, were not those which have already been adduced sufficient to show the fallacy of the criterion, and at the same time, the extreme danger which might result from carrying it into practice, without proper care and circumspection. Exactly on the same footing stand the conclusions derived from what is called the natural order or assortment of plants. Many vegetables, resembling each other in their general aspects, do not disagree in their medicinal properties. But this does not always hold, and among the instances to the contrary, may

be enumerated the digitalis, and the verbasum, or common mullein of our fields, each of which is included in the same natural family, though the one is as active as the other is mild in its effects. Nor is this all. Different portions of some plants are possessed of very opposite qualities, as we see strikingly illustrated in our own podophyllum peltatum, or may-apple, the leaves of which are poisonous, the root powerfully cathartic, and the fruit agreeably esculent. What, on the whole, physiognomy proves in relation to the human character and dispositions, the exterior appearances of plants perhaps shew as to their virtues and powers. Each sometimes acquaints us correctly, though he who implicitly trusts to either, will often have reason to complain of his misapprehension and disappointment.

Let us not, however, disparage the utility of botany. To ascertain the identity of any plant, which the arrangements of this science enable us to do, is an object of no minor consequence. Deprived of the aid which it lends us, the greater part of the experience of our predecessors would be lost to us. We should have to start anew in our investigation of plants, and, like mariners cast on a desolate shore, move through unexplored regions with a step slow, faltering, and retarded.

Not the least of the extravagancies which marked the wild career of Paracelsus, was the inculcation of the notion, that such plants as bear a re-

semblance to any one part of the body, have a peculiar efficacy in relieving its disorders. Thus, the euphrasia, even at the present time, is used in the complaints of the eyes, because it has a black spot in its corolla resembling the pupil; and the pulmonaria retains not less reputation in the affections of the lungs, since in its form, its texture, and its areolæ, it is not altogether dissimilar to these organs.

Exploded as it is, wherever intelligence prevails, nothing except the desire to preserve something like a regular chain in my present narrative, would have induced me to notice, as one of the means of ascertaining the virtues of plants, this old and absurd doctrine of Signatures.

To determine the powers of medicines it was formerly the practice to make experiments on the fluids taken out of the body. This was more particularly the case while the doctrines prevailed which supposed disease to depend on a depravation of the blood or other fluids. To the disciples of this sect, the operations of the laboratory were considered as presenting a faithful image of the actions of the living system, and hence they were very naturally seduced into this course of inquiry. Not the slightest advantage, however, has accrued from such visionary projects. Those who were deluded by them ought to have recollected the peculiarity of vital power, and how much the changes

which the fluids undergo are influenced by impressions made through the intervention of the solids.

In pursuit of the same end, it has been not less the custom to experiment largely on the brute creation, and on the first view it promised the most interesting results. Subsequent experience has, however, taught us that it cannot be trusted. Different animals we have discovered are variously affected by the same article. What is food to one may be to another an active medicine, or virulent poison. Thus cows and hares will eat hemlock ; hogs, henbane and hellebore ; goats, nicotiana and euphorbium ; and some birds, the laurel berry. The powerful antimonial preparations are comparatively feeble on a horse, and a dog which will take three times as much opium as a man, may be thrown into convulsions, or perhaps killed, by a moderate dose of jalap, or even by a few bitter almonds.

Disappointed in their anticipations from the preceding modes of inquiry, the cultivators of the materia medica were ultimately driven to make their trials on the human species. But doomed, as it would seem, to perpetual fallacy on this subject, they restricted their experiments chiefly to the system in a state of health. Nothing could be more inconclusive. Disease so materially influences the condition of the body, and its susceptibilities to impression, that the agency of substances is in consequence very strangely modified, and in many instances entirely changed. Nevertheless, such investigations

are not to be contemptuously rejected. They will sometimes serve, at least, to acquaint us with the general powers of the article. That, however, they may be conducted to any practicable purpose, the phenomena produced by the substance must be carefully watched, and faithfully reported, not only as indicated *by the pulse*, but as is displayed in *every part and function* of the animal economy.

By more than one enthusiast it has been assumed, that all medicines are similar in their operation, differing only in degree of force, permanency and diffusibility. My own conviction is, on the contrary, that we should approach much nearer the truth, by considering every article, or at all events, congeners, or assortments of kindred articles, as endowed with peculiar powers, and having a relation or affinity to some one organ or portion of the body.

As yet, then, no means have been mentioned of ascertaining the medicinal virtues of substances in which we can implicitly confide. The sensible qualities of the article, chemical analysis, botanical affinity, experiments on dead matter, on the lower animals, or on the healthy human system, may conduct us, in some instances, to a tolerable knowledge of its general nature, but can never be adopted as safe criteria for practical purposes. Experience of their effects on the body, in a diseased condition, is the only mode of determining the virtues of medicines. But even this is

liable to fallacy, and its dictates must be received with doubt and hesitation.

Medical conclusions differ very widely from every other species of evidence. We cheat ourselves by a thousand illusions, and have imposed upon us still more deceptions. It is not necessary that I should enforce this remark by the enumeration of any examples. No one who is conversant with the practice of physic need be told how often his own deductions have proved erroneous, or how little credit is to be reposed in those pompous recommendations with which medicines are daily promulgated.

If, therefore, we cannot trust to experience, what must be our resource? There is a true and a false experience. The latter, which is the creature of ignorance, or results from ardent and precipitate observation, can be distinguished by a careful scrutiny, and ought to be repudiated. Yet, it must be confessed, that it is exceedingly difficult to determine the precise powers of a medicine.

Experiments on this subject present many obscurities, and are liable to various inaccuracies. Distinct from other perplexities incident to the case, we have to encounter the original idiosyncracies of the constitution, or those fluctuations of condition induced by disease or by age, temperament, habit, climate, the season of the year, and a variety of other causes.

Applied in different states of the system or in

different quantities, the same medicine will be productive of very contrary effects. This is indeed so emphatically true, that we can hardly ever pronounce with certainty what will be the exact results from the dose exhibited. By reason of this it is, that we have always had so much controversy respecting the powers of medicines, and that we find, even at the present time, the articles of the *materia medica* so oppositely arranged, and their properties so contradictorily described, in the treatises on the subject.

Taught, however, by repeated trials, the virtues of the substance in a simple state, we are next to inquire how far these may be altered or improved by a combination with other matters. It was a practice with the ancient physicians to incorporate a vast number of articles in the same prescription.

This luxuriance was no doubt often mischievous, as ingredients wholly discrepant were associated, counteracting each other in their operations, and producing effects not at all anticipated. But in the rage for reformation it is not uncommon to step beyond the proper limits, and in every science, as in human affairs, it becomes salutary to review, at stated periods, what has been done, to correct the consequences of intemperate zeal, and to endeavour to hit the medium between the conflicting extremes.

Of late, the formulæ of practitioners have been marked by a simplicity which is commendable.

To me, however, it seems to be sometimes pushed too far, and that consequently, certain compound preparations are discarded, which were unquestionably of great value in the hands of our predecessors.

To check, in some degree, this tendency to excessive refinement, I mean hereafter to show, by examples, that combination in our prescriptions is, in many instances, eminently advantageous, by rendering the exhibition more convenient, and that while it imparts new powers, it increases the efficacy of the articles.

All these preliminary points being settled by a series of clinical observations carefully made under every diversity of circumstance which can shed light on the properties of a medicine, we are lastly to seek for the several indications of its use. Limited indeed would be its value, were its application confined to the case only in which it was first discovered to be serviceable. But to trace the multiplied relations of a medicine to disease, the exercise of the higher faculties of the mind is demanded, and we at once introduce the spirit of speculation, or what is termed reasoning in medicine.

Nothing has been more prejudicial than the abuse of this noble prerogative. Consulting the records of our science, we cannot help being disgusted with the multitude of hypotheses which have been obtruded upon us at different times. No

where is the imagination displayed to greater extent, and perhaps, says an eloquent writer,* so ample an exhibition of the resources of human invention might gratify our vanity, if it were not more than counterbalanced by the humiliating view of so much absurdity, contradiction, and falsehood.

The number of preposterous theories should not, however, continues he, create an antipathy to the term, nor must a panic terror of them drive us from the sacred abodes of philosophy. To be hurt with the imperfect and puerile commencements of reasoning in physic, and to relinquish the hopes of rational theory, is to be offended with the prattle of infancy, and to expect nothing better from maturer age.

To exclaim against theory has been considered as a proof of an ardour for observation. But is it not really to declare, that we must rest stupid and indifferent spectators of the events constantly passing before us? To think is to theorise. We cannot contemplate facts for a moment without perceiving some relation between them, and the very discovery leads to classifications. To deny its utility, therefore, is to clip the wings of genius, to banish

* The venerable M^rClurg of Virginia. Nearly half a century has elapsed since he gave to the public an experimental inquiry relative to the bile, with a preliminary disquisition, in defence of reasoning in medicine. It is from this splendid production, that I derive the passages which I have cited. But not having access to the work, at present, I am obliged to rely on my memory, which, perhaps, has not retained precisely the language of this eloquent writer

invention from the science, and to consign it over to the dull registering operations of memory alone.

Experience, by which I understand that species of knowledge which is acquired by frequent investigation of the same object, has been much insisted upon as the only guide to successful practice in medicine. Were this well founded, it would only be necessary diligently to attend the receptacles of the sick, and any well trained nurse might be brought to excel the most enlightened and regularly educated physician. Be this principle once admitted, and our practice becomes a blind routine without reason or reflection, and the profession, instead of being studied as heretofore, as a science, will be considered merely as a mechanical art, and exercised only as a low and vulgar trade. Can we consent to this degradation? As well might we compare the mere flutterings of the meanest and the most grovelling bird, with the bold and well sustained flight of Jove's own imperial eagle, as, those slow processes of a vulgar intellect by which facts are collected or observed; with the vigorous sallies of speculative genius, which seize truth, as it were by intuition, and reveal it in a burst of light of celestial brightness.

Nevertheless, while we cherish a due attachment to theory, we ought not to despise the humbler employment of observation and experience. There is a natural alliance between them which should never be dissolved. Let our zeal for speculation

be tempered by the recollection, that before we can raise the edifice the materials must be supplied, which can only be done by the unwearied exertion of this inferior species of diligence. Certainly the annals of medicine are already sufficiently crowded and deformed with the abortions of theory, to moderate our ardour, and to create, in future, some degree of restraint and circumspection.

Not the slightest of the causes which have conspired to retard the progress of physic is the eagerness to rash and indiscreet generalization, by which, at all times, it has been distinguished. But if ever we are to strip our art of its "glorious uncertainties," and bring into the practice of it something of exactness, it will be by pursuing a very different course. To effect so important a revolution, we must studiously examine the phenomena of disease, and with an attention no less unbiassed, observe the operation of medicines. Thus, perhaps, we shall ultimately learn to discriminate accurately the diversified shades of morbid action, and to apply to each its appropriate remedies. As it is, we are plunged into a Dædalian labyrinth almost without a clue. Dark and perplexed, our devious career, to borrow the fine illustration of a favourite writer, resembles the blind gropings of Homer's Cyclops round his cave.

It is a popular opinion, which has not wanted the countenance of persons of more intelligence, that medicine is necessarily a fallacious art, having its origin

in credulity, and which by no exertion can be made to approach towards certainty and truth. They allege, that the animal machine is infinitely too delicate and complex in its fabric ever to be ascertained by human sagacity, and hence its derangements will continue to be vaguely understood, and the reparation of them, by our remedial resources, of course, doubtful and precarious.

Exhibited in this light, the profession of medicine becomes exceedingly debased, and were this representation of it just, should cease to be an object of liberal inquiry or enlightened regard. Declining at present any formal examination of this subject, it may however be permitted me in closing this discourse, to indulge in one or two general reflections which press upon me.

Medicine is a science of observation and induction ; and, if this be conceded, it, follows, as a necessary corollary, that when properly cultivated, we can as certainly, though perhaps with greater difficulty, arrive at as definite conclusions in it as in almost any other department of physical knowledge. All which is exacted in the study, either of the sound or morbid states of the body, is vigilantly to attend to the phenomena presented, to mark the order in which they occur, as well as their mutual relations, and so to arrange them, that this order, and these relations, may be easily perceived.

Nor is it true, as has been commonly thought.

that a precise acquaintance with the vital principle is indispensably necessary, as a pre-requisite, to the advancement of our science. The nature of a principle may remain inscrutably concealed, and still the laws of its action be perfectly determined. Of this the modern, or inductive philosophy affords very many striking proofs, in the specimens of its more splendid generalizations.

Encouraged by the success which has attended the application of the true methods of research to some of its kindred sciences, let us imitate the course, and endeavour to do the same with medicine. To this undertaking, we are called to unite our efforts, not more by a sense of professional duty than by obligations of a still weightier description. We live in times, and in a country, peculiarly auspicious to the enterprises of intellect, and to the schemes of reformation.

Availing ourselves of the privileges we possess, and animated by the noblest impulses, let us cordially co-operate to give to medicine a new direction, and attempt those great improvements, which it so imperiously demands. Even if we should not carry it to that point of absolute perfection, which sometimes has been, perhaps too sanguinely, predicted, we may, at least, “by infusing into the science the genuine spirit of reason and philosophy render it richer in glory, and more fruitful in benefits to mankind.” But a higher reward awaits our exertions.

Let us only pursue with a steady and undeviating perseverance that track of correct philosophising which has been indicated, and we cannot fail to place medicine on a basis so solid as never again to be convulsed by the revolutions of opinion, or the vicissitudes of fashion, but which shall endure as a monument of our triumphant industry, unimpaired amidst the waste of ages, and the ravages of time.

DISCOURSE III.

On the Modus Operandi of Medicines.

THIS is a very intricate question, and one, on which not a little difference of opinion prevails. After much controversy, the only point which seems, indeed, to be conceded, is, that the operation of medicines does not depend on any of the common laws of matter, but, on a principle incident to vitality alone.

“*Medicamentum, non agit in cadaver.*”

As this is so universally admitted, as even to become one of the established maxims of the schools, it may be right before we advance further into the discussion, to endeavour to fix our notions in relation to the nature of life. But as speculations of this sort, indulged to any extent, would be here misplaced, I shall exhibit my views of the subject, in as narrow a compass as possible.

Of the various doctrines of vitality, one only appears to me to be at all well founded, and consequently deserving our attention. It presumes that every animated body, animal or vegetable, is endowed with a *primordial principle of life*, and which, resident in the ova of animals, and the seed of plants, constitutes the power by which, in the first place,

the various organs are moulded, developed, and perfected, and by which, afterwards, the animal economy is defended against the action of mechanical and chemical laws.

Located, perhaps, in the highest degree, among the digestive and assimilative organs, it enables them to change, or destroy the qualities of the substances exposed to their operation, without sustaining in return the slightest injury or change. It would hence, really appear, that instead of matter, whether aliment, drink or medicine, acting on the living system, as is commonly imagined, it is, on the contrary, the living system which operates on these matters. But, such is the case only, when the vital energies are in a vigorous and healthy condition. Different, very different indeed, is the result, where from debility or other imperfection, the vital organs are rendered unfit to act upon substances, or of resisting the action of substances on the system. Whatever is taken into the stomach under such circumstances, preserves its properties unaltered, or undergoes the same sort of alteration, which it would do out of the body, or beyond the sphere of the vital powers. Each article in this state obeys the order of its affinities, and the changes which occur, are purely chemical. Common matter, now acting by its own laws, the system being thus languid and decayed, sinks under the attack it cannot repel, and the processes of fermentation and putrefaction ensue, which, if not

timely arrested, become the precursors, as well as the causes of death and destruction.

Life, therefore, may be defined the principle, or power by which the system preserves its own integrity unimpaired, and its several parts from decomposition, amidst the action of surrounding agents, while it acts upon things foreign to itself, assimilates them to its nature, and appropriates them to the supply of its exigencies, or to the redress of its injuries.

My theory of the operation of medicines is of modern date, and alleges, that they all act by exciting a local impression which is extended through the medium of sympathy. By many, however, it is still believed, that certain articles, at least, enter the circulation and produce their effects in this way.

The latter hypothesis is evidently a relict of the humoral pathology. By the disciples of that sect, it was held, that disease consists in a deprivation of the blood, “from too great tenuity or viscosity, by an excess of acid or alkaline acrimony, by morbid matter entering from without, or generated within.”

As a necessary consequence of this view of disease, medicines were supposed to penetrate into the circulation, and by a sort of chemical action to correct the vitiated condition of the fluids, and hence the origin of the terms, inspissants, attenuants, antacids, antalkalies, antiseptics, diluents, demulcents, &c. &c.

As they are now pretty generally exploded, to demonstrate the fallacy of these speculations, by any very minute detail of facts or reasonings, cannot be required. My opinion is, that changes in the condition of the fluids are wrought by impressions made through the intervention of the solids. Not the slightest proof exists, so far as I know, of their undergoing any mutations, either by spontaneous action, or from the introduction of foreign matters, much less that such is the cause of disease, or the mode in which our remedies operate.

To reach the circulation, medicines must pass either by the lacteals or lymphatics. Now it seems more than probable, in either case, their powers would be so neutralized by the preparatory processes of animalization, as to be deprived of all activity.

Can it indeed be credited, that any substance, after a subjection to the digestive and assimilative powers, retains in the slightest degree its original properties. Experiments, on the contrary, show, that chyle, however diversified the materials may be out of which it is formed, whether animal or vegetable, has invariably an identity of nature, and instead of being a *crude*, as is commonly imagined, is in reality a highly *elaborated* fluid, having many, and perhaps all the properties of blood, except its red colour. Three of the constituents of blood it at least contains.

1. There is one portion of chyle, which preserves

its fluidity during life, but coagulates after death, by exposure to the air, and is probably fibrine.

2. There is a second portion, which resembles serum, in continuing fluid when exposed to the atmosphere, and in coagulating at the same degree of temperature as serum.

3. There is a third, consisting of globules, similar to those of blood, with this difference only, that they are much more minute.

The fact of the perfect and uniform constitution of chyle seems to me, at once, to put down the hypothesis which I am combatting. But, perhaps it may be said, it proves nothing in the case of medicines administered otherwise than by the stomach, as when applied to the surface of the body, or introduced into the bowels. To this objection the answer is obvious, and I think very satisfactory.

No one who has carefully attended to the phenomena of the absorbent system, can help admitting, that every section of it is endowed with the power of *digestion* and *assimilation*, and the lymphatics quite as conspicuously as the lacteals. This capacity is given, as a provision of nature, to exclude noxious matters from the circulation.

The absorbents, in some instances, are fully adequate to this end, and when they are not, the substance penetrates to the first conglobate gland, which takes on inflammation, and arrests its further progress, these organs acting here as sentinels, guarding the exterior approaches of the body.

That some of the properties of certain articles, as the odour of garlic, and the colouring matter of madder, are displayed in the secretions and excretions, I am not disposed to deny. But it does not hence follow, that these substances entered the circulation in their primitive state. Directly the reverse indeed seems to be proven, as neither the one nor the other can be detected in the serum of the blood.

To me it is clear, that the process of assimilation, as performed either by the chylopoietic viscera, or by any part of the absorbent apparatus, completely decomposes all substances, and however discrepant in their properties, reduces them to a homogeneous fluid fitted for the purpose of nutrition. But when thrown into the secretions or excretions, being removed beyond the sphere of the vital energies, the chemical affinities are sometimes again brought into play, by which these substances are in part, or wholly regenerated.

Whether this explanation be received or not, it must at least be acknowledged, that no substance, in its active state, does reach the circulation, since experiments have shewn, that a few drops even of the mildest fluid, as milk or mucilage, oil or pus, cannot be injected into the blood vessels, without occasioning the most fatal consequences.*

* In the year 1799, in conjunction with my friend, the late Dr. George Lee, then resident in the Pennsylvania Hospital, I instituted a series of experiments, with a view of ascertaining the effects of certain substances, when injected into the blood vessels. All the articles enumerated above, were tried in succession, together with some others of an acrid

Conceding, however, to the humoral pathologists all which their doctrine demands, and still innumerable difficulties remain in the way of its adoption, to account for the operation of medicines. Not to dwell tediously on this subject, I shall content myself at present with merely mentioning that we are not at all informed by it, why our remedies, after mixing with the blood, should be directed to one organ in preference to another, as mercury to the salivary glands, or how indeed they operate at all. Nothing, surely, is less probable, than that dead matter, by mere mixture with an insensible fluid, like the blood, should produce any effect on a living system. If it be alleged, as it has sometimes been, that the action of medicines, under such circumstances, is on the surface of the blood vessels, then, the doctrine becomes utterly deserted, and we are forced to recur to sympathy, as affording the only explanation.

By a recent writer of high authority, whose opinions however on this subject, are not wholly without the taint of the humoral pathology, it is conceded, as an incontrovertible fact, that a large proportion of our medicines do act by the "medium of nervous communication."

and stimulating nature, on dogs and cats, the animals selected for the purpose. But diversified as these substances are in their properties, we could discern no material difference in their effects, the whole seeming to act merely as extraneous matter in *error loci*, producing, at first, great distress to the animal, as was indicated by its movements and cries, followed by difficult panting respiration, vomiting and purging, nervous tremors, convulsions, and death.

“This,” says he, “is manifest, from the effects of these substances being produced in a shorter time after they have been received into the stomach, than they could be, were they to act by being absorbed with the chyle into the circulating mass. The stimulus of wine or opium will instantly remove lassitude, and increase the vigour of the circulation, or of muscular exertion. Digitalis given in sufficient quantity, very speedily reduces to a great degree the frequency of the pulse, or a large dose of cinchona, exhibited half an hour before the expected recurrence of the paroxysm of an intermittent, will prevent its attack.”*

The principle being thus clearly established in so large a number of instances, which, if necessary might be still further increased, it appears to me, that it should be admitted as an universal law, unless exceptions to it are very clearly made out and demonstrated. To multiply causes superfluously, is against one of the fundamental rules of philosophising, and is not less repugnant to the general course of nature, whose means are proverbially distinguished by great simplicity and uniformity.

As regards the mercurial preparations, an example particularly selected by the writer whom I have just cited, to illustrate the occasional admission of medicines into the circulation, we have the most conclusive proof that this never happens.

* Murray's Mat. Med.

whatever may be the manner in which they are employed,* and no doubt such is the case with all the articles of the *materia medica*. It is at least as clearly shown, by experiments made by myself many years ago, and which have been since more than once repeated with greater precision, and on a more extensive scale, by graduates of this school, that none of the preparations of iron, of copper, of lead, nor the colouring matter of indigo, of madder, or of rhubarb, can be traced even so far as the chyle.† Could more proof be required of the operation of medicines being entirely independent of the circulation, it might be found in the well ascertained fact, that many of them produce their full effects, though the heart and blood-vessels be previously removed. Long ago it was shown by Whytt, that if the heart of a frog is taken out, and a solution of opium be injected into the abdomen, the animal speedily becomes convulsed. The poison of the viper, according to Girtanner, applied to a frog prepared in the same way, will destroy it as soon as if no mutilation of the animal had taken place. Numerous experiments of a similar import, with other active substances, have been instituted, the results of which are so exactly correspondent, that to detail them would be superfluous. But, before

* Experiments of Dr. Physick and Seybert, *Medical Repository*, vol. v.

† Hodge's *Inaug. Dissertation*, in which many of these experiments are contained.

I finally dismiss this part of my inquiry, I will only remark, that the converse has been equally proved, or that no extension of the impression of medicines happens in cases where the brain and spinal marrow have been destroyed, though the heart and vascular system be preserved uninjured *

It results, on the whole, from what I have said, that we are to reject the fluids altogether in our inquiries relative to the operations of medicines, because, in addition to the reasons already stated for doing so, we have in that law of the animal-economy termed sympathy, or consent of parts, a solution of the problem which comports infinitely better with the existing state of our knowledge.

Conformably to the theory which I have proposed, whenever a medicinal substance is applied to a susceptible portion of the body externally or internally, an action is excited, which is extended more or less, according to the diffusibility of the properties of the substance, or the degree of sympathetic connection which the part may maintain with the body generally. Thus a set of actions is raised, every one of which is precisely similar, provided they are confined to the same system, by which is to be understood parts of an identity of structure. If, however, the chain runs into other systems, it loses its homogeneous character, the actions being modified by the peculiar organization of the parts in

which they may take place. These are principles of universal application. In every case, whether it respects the operation of remedies, or the production of disease, the spot primarily acted upon is a point, from which is diffused the radiated impressions.

As the doctrine here advanced is intimately connected with the principle of sympathy, it may be proper that I should say a few words on this subject. There are indeed not wanting some who have affected scepticism as to the very existence of such a law. It must be confessed, at present, we have no very distinct intelligence relative to its nature. But are we, on this account, to question its existence? Equally might we doubt of the sensibility or irritability of the body, since neither of these qualities of vital matter has been precisely demonstrated. Notwithstanding this, we are persuaded of their existence from the phenomena which they exhibit, and it is by the same description of evidence that we are, or ought to be, assured of the existence of sympathy.

“Causa latet vis est notissima.”

In employing this term, therefore, we mean only to denote, like chemical affinity, caloric, and many other such expressions, a principle, or power, of which we know nothing except from the experience of its effects, the precise essence or nature being occult, and concealed. Thus, in the same way,

says Newton, "What I call *attraction* may be performed by *impulse*, or by some other means unknown to me. I use the word here to signify only in general, any force by which bodies tend towards one another, whatever be the *cause*."

Of the manner in which impressions are extended, as well as of the cause of the more intimate consent of parts, we are not perhaps accurately informed. It would seem, however, that in neither case is it to be exclusively referred to the mediation of the nerves, as is commonly supposed. Those sympathies which prevail among the various viscera of the abdomen, and between them and the head, neck and contents of the thorax, may be explained with sufficient probability, by the extensive anastomoses of the intercostals with almost all the nerves which proceed from the spinal marrow. But, there are many other sympathies, not less conspicuous, between parts, the nerves of which have not the slightest connection. It appears, that either by the co-operation of different organs in the performance of a function, as in the complex apparatus subservient to respiration, or from similarity of structure, parts, though detached, being prone to be affected by the same cause, as the parotid gland and testes in the male, and the same gland with the mammæ in the female, the habit of acting in unison is acquired, and sometimes confirmed. This habit of concerted action is termed association, and has been adopted as a principle by Locke, by Hartley.

and by Darwin, to account for the connection in many of the motions of the body, as well as in the operations of the mind. Both the sound and morbid states of the system present numerous instances of these associated actions, some of which are constant and uniform, while others are occasional and anomalous, produced, as it were, accidentally.

The principle of sympathy pervades the body, every portion of it being susceptible of associative actions, by which means the several parts are linked together so as to constitute one whole, or a unity of system. It is to this principle, whatever it may be, which, uniting all the organs of the animal economy, that we are to impute the wonderful concurrence and perfect harmony which is observable in its complicated actions during health. But though this general medium exists, to the reception and propagation of impressions, there are three surfaces on which remedies, and perhaps the causes of disease, more particularly operate. These are,

1. The alimentary canal.
2. The skin
3. The organ of smell.

Each of these parts has a considerable susceptibility, and maintains a very extensive connection with the system generally, though the stomach is possessed of infinitely the quickest sensibility to action, and the most intimate and multiplied relations. No viscus or organ, not even the brain itself, can be

compared to it, in this respect, or which occupies so important a station in the animal economy.

Destitute of a stomach, no animal can exist. Life may be sustained, even in the perfect animals, independently of almost every other organ. Examples are numerous of fœtuses being born of a full size without a brain, spinal marrow, heart, lungs, liver, or uterus. No instance, however, has been met with, in the course of my very extensive researches on this subject, where the stomach was wanting. As the most indispensable of the vital organs, it seems, indeed, to be an inseparable incident to every variety and gradation of animal existence. No matter how inferior the being may be, it is always provided with some apparatus equivalent to a stomach.

Conveniently situated for the purpose, the stomach is probably the throne of the vital principle, from which would seem to emanate an influence that, diffused over the system, preserves, as I have already mentioned, the order of the parts, and sustains the vigour, tone, and well-being of the whole animal economy.

“*Languido ventriculo, omnia languent.*”

Assailed, however, by impressions which it cannot resist, this organ, as the centre of association, becomes the seat of the first link in the chain of most diseases, and is always the chief medium of the

operation of our remedies, in the correction of morbid derangements.

As a continuation, pretty much of the same structure as the stomach, the intestines, afford also a medium by which medicines may be introduced, and sometimes, with great advantage. There is, indeed, scarcely one article of the *materia medica* which cannot be so managed, as to produce its full effect when thus employed. To attain this, however, the dose should be largely increased, and, as a general rule, about three times the quantity is demanded. It is, perhaps, not sufficiently known, that after the stomach, by long use, has lost, or had greatly impaired, its susceptibility to the action of a medicine, this will operate with fresh and unabated force, if applied to the rectum.

That the surface of the body is another part on which our remedies act, has been known from the earliest times, and the practice founded upon it, is probably to be ranked "among the first attempts that were made in the infancy of our science, toward the removal of disease." The whole of the cutaneous surface seems endowed with some sensibility to impression, though the soles of the feet are possessed of it in the largest degree, and hence, have been pronounced, by a distinguished teacher of physic, as constituting, among the widest avenues to the invasion of disease, or for the introduction of remedial impressions. But, though the practice has been so long and generally pursued, it was

never doubted till lately, that when thus applied, medicines operate in any other way than by entering the circulation. Even the rubefacient and vesicating applications were, at one time, not excepted; the effects of these, on the contrary, being ascribed altogether to the absorption of the acrid particles of the substance used for these purposes, into the blood, and thereby raising the excitement of the system.

Nearly about the same period, Mons. Seguin, in France, and Dr. Rousseau, of this city, called in question the existence of cuticular absorption. But the praise of laborious and successful investigation, is due exclusively to the latter experimentalist.

As early as the year 1800, it was proved, or at least rendered highly probable by him, that the *pulmonary organs*, and not the *skin*, constitute the inlet through which certain substances enter the system.

By cutting off all communication with the lungs, which he easily effected by breathing through a tube protruded into the external atmosphere, he found, that though the surface of the body were bathed with the juice of garlic, or the spirit of turpentine, none of the qualities of these fluids could be detected, either in the urine or the serum of the blood.

Conducted nearly on the same principle, but with a greater diversity of substances, experiments exceedingly well devised, and neatly executed,

have since been made by persons of opposite prepossessions, to an almost incredible extent. Contradictory as many of these are, a candid examination of the whole, will still lead to a pretty satisfactory conviction, that absorption from the surface of the human body, does not exist as a natural and ordinary function.

Borne down with the weight of evidence against them, most of the advocates of the ancient hypothesis were indeed prepared to abandon it, as no longer tenable, when about four or five years ago, an experiment made by Dr. Mussey, again revived their faith in cuticular absorption. He very clearly proved, that if the body be immersed in a decoction of madder, the colouring matter of this substance will be taken in, and may be displayed in the urine by using any one of the alkalies, as a test.

Determined, if possible, to put this agitated question to rest, Dr. Rousseau, assisted by his friend Dr. Saml. B. Smith, has subsequently performed a series of experiments, many of which I witnessed, and can therefore bear testimony to their accuracy, with every variety of substance, mild and acrid, volatile and fixed, nutritive, medicinal, and poisonous.

The result of these extensive researches, is :

1. That of all the substances employed, madder and rhubarb are those only which affect the urine, the latter of the two, the more readily enters the system. Neither of these articles can be traced

in any other of the secretions or excretions, or in the serum of the blood.

2. That the power of absorption is limited to a very small portion of the surface of the body. The only parts, indeed, which seem to possess it, are the spaces between the middle of the thigh and hip, and between the middle of the arm and shoulder.

Topical bathing with a decoction of rhubarb or madder, poultices of these substances applied to the back, or abdomen, or sides, or shoulders, produced no change in the urine, and equally ineffectual was the immersion of the feet and hands in a bath of the same materials, which, after being kept in it for several hours, not the slightest proof of absorption was afforded.

As I have described, such is the state in which this interesting subject is at present left. Though, perhaps, not absolutely decided, enough surely has been done, to demonstrate, that cuticular absorption rarely happens, and that whenever it does, it cannot be deemed the effort of a natural function.

Covered, as is the whole surface of the body, by the impervious cuticle, it is manifest to me, that absorption can alone take place in one of two ways; either by forcing the substance under the scales of the epidermis, as in the instance of the application of frictions, or by continued bathings, or fomentations, the cuticle becomes so changed in its organi-

zation, as to admit of transudation, or the insinuation of the fluid under its squamous structure, so as to come in contact with the mouths of the lymphatics situated within.

At all events, whatever difference of opinion may be entertained as to the degree of conclusiveness of the experiments to which I have alluded, it cannot be necessary to resort to cuticular absorption to explain the effects of substances applied to the surface of the body. We shall do this much more satisfactorily, by referring it to sympathy, and to another source which I am presently to point out.

That the skin has a very intimate connection with the body generally, and more especially with the stomach, is a fact so notorious, that it would be a waste of time in me, to attempt to prove it. It is through this medium that most substances applied to the surface, certainly operate.

The discovery of the pulmonary absorption, would seem, I confess, on the first view, to militate in some degree against this opinion, and to render it more than probable, that volatile matters, at least, are inhaled and act through the lungs. Experiments, however, have recently been made,* which go far to invalidate this supposition, and shew, that under such circumstances, it is the olfactory nerves, which are the seat of the impres-

* By Dr. Rousseau

sion, and the medium through which these volatile matters produce their effects. These experiments would occupy too much space to be separately detailed. Collectively, they warrant the conclusion, that, by simply closing the nostrils, either by compression by the fingers, or by filling them up with putty, the fumes of ardent spirits, of a strong decoction of tobacco, or an infusion of opium, may be inhaled for one hour, without any unpleasant effects; whereas, if the precaution mentioned be omitted, the consequences are proven to be most distressing.

New as these results are, and inconsistent with our pre-existent notions as they may be, they are rendered highly probable, independently of the respectability of the source whence they proceed, by some facts of a very striking and indisputable nature. Every practitioner has witnessed how powerfully all the volatile and odorous matters operate on the olfactory nerves in health and in sickness; and it is hardly less known, that when the sense of smell is impaired by a coriza, or entirely suspended by obstructing the nostrils, that the sensible qualities of most substances are so lost, that they cannot be accurately discriminated, and this extends, even to those articles of our food or drink, with which we are most familiar. The preceding facts are sufficient, at least, to awaken curiosity on this subject, and to urge to more exact inquiries, by which the truth may be elicited and confirmed.

DISCOURSE IV.

On the Classification of the Materia Medica.

I HAVE completed what I mean, at present, to say on the *modus operandi* of medicines generally. It has not occupied as much of my attention, as perhaps the importance of the subject demands. But I shall again revert to it, in treating of the particular classes of remedies, when an opportunity will be afforded me of giving to it a further and more precise consideration.

The materia medica has sometimes been divided into nutriments and medicines. This arrangement, I shall not adopt. The plan which hitherto has been pursued in the investigation of the articles of food, seems to me to be exceedingly idle in itself, and to lead to no sort of practical utility. No one need now be told, at least in this abundant country, of the solid qualities of beef and mutton, of the delicacy of poultry, or of the flavour of game; that we have some vegetables which are flatulent, and some otherwise; that ardent spirits, when drank to excess, will intoxicate, and ultimately produce disease, and that, on the whole, the use of water is more natural, preserves sobriety, and conduces to health. Daily experience teaches us all on this

subject what to select, and which to avoid, with infinitely greater certainty, than any system of abstract instruction which can be devised.* The disquisitions, indeed, which I have met with of this sort, are among the specimens of the most arrant pedantry and empty flummery that have ever been imposed on the credulity, or insulted the common sense, of mankind.

Let it not, however, be supposed, that I wish to disparage the utility of diet, or to deprecate any further inquiries into the subject. Directly the reverse are my sentiments. To a proper regulated regimen, as a means of preventing and curing diseases, or for securing a speedy convalescence, it is impossible for any one to attach a greater importance than myself, or more ardently to desiderate a work, which, coming from the hands of a practitioner of enlarged experience, and sound judgment, shall exhibit the most minute and detailed instructions, for the adaptation and even cookery of food, and preparation of drinks, in such cases.

As respects the classification of medicines, much difficulty has always been confessed. It is not my intention to notice, in detail, the multiplied systems which are extant. The history of these may be found in most of the treatises on the *materia medi-*

* "The common experience of mankind will sufficiently acquaint any one with the sorts of food which are wholesome to the generality of men; and his own experience will teach him which of these agree best with his particular constitution." *Heberden*.

ca. I shall now merely remark, that every attempt which has been made to arrange medicinal substances according to their sensible qualities, their chemical compositions, or their botanical affinities, has completely failed. The principle on which they are all founded, unavoidably associates articles, which, as remedies, have no resemblance, and separates others, that are intimately allied by their properties.

As our object, in the cultivation of the *materia medica*, is to acquire a knowledge of the medicinal virtues of substances, it is obvious, that the best arrangement is the one, which places them as nearly as possible, as they correspond in their effects on the living system. But even this, is not without its perplexities and disadvantages, the chief of which, arises from our imperfect acquaintance with the laws of the animal economy, and the operation of remedies. It is not easy, on this account, to appreciate their effects with accuracy, and especially in a state of disease.

Many of our medicines are possessed of diversified powers, and hence require to be considered in different views. The same article may be emetic, cathartic, diaphoretic, and therefore, in order to its complete history, must be introduced into each of these classes.

This is exceedingly inconvenient, as it exposes us to constant repetitions, and renders our descriptions necessarily broken and detached. But even

with all these defects, this mode of arrangement is incomparably superior to every other plan, and will be pursued by me.

Cullen, who of late has been usually followed by the teachers of the materia medica, has a general division of medicines as they operate on the *solids* and *fluids*.

The first class, according to him, acts either on the simple or vital solid.

Those which operate on the simple solid, are astringents, tonics, emollients, and erodents.

Those which act on the vital solids, are stimulants and sedatives, including narcotics, refrigerants, and antispasmodics.

The medicines which operate on the fluids are such as either produce a change in them, or occasion some evacuation. The former comprise attenuants, and inspissants. When they correct general acrimony, they are called demulcents. When partial acrimony, antacids, antalkalies, and antiseptics.

The latter, as evacnants, are errhines, sialogogues, expectorants, emetics, cathartics, diuretics, diaphoretics, and emmenagogues.

In this respect, however, he has manifestly departed from his own system of pathology, since he strenuously maintains, that the fluids are never primarily affected. I will not pause here to point out the many other objections which might be alleged against this celebrated classification. They are too

obvious to escape observation, after what I have said on a preceding occasion, and therefore demand no particular criticism.

My own opinion, as relates to the operation of remedies, I have already distinctly expressed. It is my most deliberate conviction, that they all act by virtue of that law of the animal economy termed sympathy, and that, whatever changes may be wrought in the fluids, are to be referred to impressions through the mediation of the solids. But, while I maintain so far the uniformity of the operation of medicines, I wish it to be understood, that I am not among those who, in the eagerness of generalization, have insisted, that they all are endowed with the same properties, differing only in degree of force, permanency, and diffusibility. I entertain, indeed, an entirely opposite view of the subject. My impression is, that scarcely any two agents produce entirely the same effects, and hence the infinitely diversified shades of disease, and the necessity for a variety of remedies in the management of them.

Every organ of the animal economy we know is excited to the performance of its office only by its natural and appropriate stimulus, as the eye by light, the ear by sound, the testicles by venereal desire ; and it is the same with regard to medicines and other external agents. The difference in the kind of action which they exert, is not less conspicuous. Mercury, and opium, and wine, and volatile alkali,

and camphor, are all stimulants, and so far they agree in their general properties, though, in the nature of their operation, are extremely discrepant, and cannot, by any variation of dose, or manner of administration, be assimilated. This holds equally true with respect to all the important articles of the *materia medica*. By an attentive observation of the phenomena, we shall be persuaded, that while each displays a stimulating power, its action is modified by its own peculiar qualities, and that the effects produced are, to a certain extent, *sui generis*.

But another distinction is to be attended to, in the operation of medicines. There are some which have a wide pervading operation, extending over the whole system, while others are local in their primary effects, being limited to a single organ or part.

Of the first class, or general stimulants, we have a considerable section, which is marked by great diffusibility, and as soon as they are exhibited, occasion an universal excitement. There is a second division, by which vigour and tone are imparted to the body, attained, however, very slowly, and only by a long continued administration. Those which are diffusible are very transient in their effects, while such as are more gradual in their operation, produce permanent impressions.

The local stimulants act either immediately on the stomach, or are directed by a species of affinity

to some distant part. The relations between medicinal substances, and certain portions of our organic structure, are exceedingly curious, and deserving, in a practical view, the most serious reflection.

In advancing the preceding opinion, I am aware that the possibility of any medicine acting specifically on one part, without exerting the same sort of action on other parts, has been denied, and on the ground of the intimate connection, which can be traced throughout the whole animal structure. It must be conceded, that a superficial view of our organization, and the uniform order of its various actions in a sound state, render such an objection very plausible. But a more minute examination, independently of a series of well conducted experiments, performed in this university,* establishes directly the reverse.

The fact is, that while the several systems, or subordinate divisions of the body are so linked together as to constitute one whole, such is still the independency of each, and such the difference in the operation of the same article, that certain applications made to an individual part, will be productive of the most fatal consequences, which to some other will be attended with mild and even salutary effects.

It follows, from the preceding remarks, that I hold all medicines to be stimulants. As, how-

* Bibb's Inaugural Dissertation.

ever, it is very material in every enquiry, that we should have a clear understanding of the terms to be employed, I shall, at this early stage, define what I mean by stimulants and sedatives. The discussion which has so long been maintained on this point, is really little else than a dispute about words. As whatever produces any positive impression on the living system must do it by an incitant power, there can be no doubt, that, in a very strict sense, every medicinal substance is a stimulant. But the effect thus created may be inferior to the natural degree of excitement, and much less than that of disease. When this happens, as lessening action, the article may with propriety be denominated, and in a practical view considered, sedative, in contradistinction to our more energetic remedies.

The views which I have presented, of the qualities and *modus operandi* of substances, lead to a very simple classification of the articles of the materia medica. I might, indeed, comprise the whole of them under the two heads of local and general stimulants. But, as such generalizations are unavoidably deficient in perspicuity, I shall subdivide each of these leading departments into subordinate classes.

The first will include, emetics, cathartics, diuretics, lithontriptics, diaphoretics, expectorants, emmenagogues, anthelmintics, epispastics.

The second, diffusible stimulants, tonics, astringents.

EMETICS.

These may be defined medicines which excite vomiting, independently of any effect arising from the mere quantity of matter introduced into the stomach.* The use of these remedies is so extensive, and their effects often so salutary, that I shall be justified in treating of them at some length.

Emetics were employed in the most ancient times, and, perhaps, were among the earliest remedies. To evacuate the stomach, for remedial purposes, seems indeed, to be the suggestion of an instinctive impulse. It is a practice pursued by the most savage tribes, and even by the brute creation, and nothing, therefore, can be more absurd, than the opinion of those physicians who have objected to their use, as an unnatural and dangerous remedy. We have no class of medicines so generally resorted to, or of which nature has provided such a profusion.

Of the mechanism of vomiting, little need be said. The vermicular motion of the stomach, in this process, is inverted, the diaphragm and abdominal muscles are called into action by association, and the pylorus being contracted, the contents of the stomach are forcibly ejected. But how this retrograde motion takes place, it is not very intelligible. Emetics are undoubtedly stimulants, though the effect is not always proportioned to the degree of power which the article may possess. It is, indeed,

* Murray's Mat. Med.

maintained by Darwin, with sufficient plausibility, that vomiting is not the consequence of increased, but of diminished action, proceeding from the disagreeable sensation of nausea and sickness. This state being induced, he presumes that the natural motion of the stomach is gradually lessened till ultimately it ceases, and a new and inverted action takes place. The supposition of vomiting having its origin in debility of the stomach, certainly derives some confirmation from the circumstance of its being frequently excited by extreme languor, or syncope, whether induced suddenly, or brought on by protracted disease. Whatever, in fact, relaxes the system, disposes to vomiting. But, on the other hand, many of our medicines, actively stimulant, are also emetics. It is not easy to reconcile such a contradiction, and the only way in which it seems to me that it can be done at all, is, by supposing, that while the article is acting locally as a stimulant, it is producing, indirectly, general debilitating effects.

By some physiologists, it has been doubted whether the stomach is not entirely passive in the effort of puking. They allege, that in the operation the diaphragm and certain auxiliary powers are alone concerned. But the experiments of the celebrated Mr. Haighton are so conclusive, as to leave this no longer a matter of speculative controversy. During the effort of vomiting, he opened the thorax of several animals, and distinctly saw the contrac-

tions of the stomach, and, of course, its direct agency in the process.*

Connected with the operation of this class of articles, there is a peculiarity not unworthy of remark. Most other medicines lose their power by repetition, which, indeed, would seem to be one of the laws of habit. Exactly, however, as emetics are repeated, so does the stomach increase in susceptibility to their impression, so much so, that after frequent use, the mere sight of the medicine, or even conversation relative to it, will excite vomiting. Yet, like other articles, emetics operate with various degrees of facility on different persons, and at different times on the same person, which is, in part, to be imputed to original peculiarities of constitution, and still more to the influence of disease. In most of the febrile affections, vomiting is readily provoked, while in those belonging to the order *vesaniæ* and the class *neuroses*, as in mania, epilepsy, and tetanus, it is a matter of extreme difficulty. This is also most remarkably the case with respect to *cynanche trachealis*.

Emetics do not immediately display their effects. The first indication of their action is an uneasy vermicular sensation of the alimentary canal, attended with some nausea and chilliness, a pale

* These experiments are said to have been recently repeated in France, by Majendie, in the presence of a committee of the National Institute, and with opposite results.

countenance, and a pulse feeble, quick, and irregular. But as soon as vomiting is induced, the face becomes flushed, the circulation is more vigorous, though still comparatively weak, and there is a glow on the surface. The operation having ceased, the system is left languid, and there is a disposition to sleep, which is interrupted for some time by slight occasional sickness. The skin is cool and moist, with more or less perspiration, and the pulse, which continues weak, is slower and fuller.

In a curative point of view, the leading effect of an emetic is the evacuation of the stomach. This alone is a very important consideration, when we reflect on the extensive influence of this organ, and recollect how dangerous are the consequences which often ensue from the retention of its acrid, vitiated, or oppressive contents. Nor do the advantages stop here. The same inverted motion which empties the stomach, is extended to the duodenum, and in some measure to the inferior portions of the intestinal tube, and while the united functions of the diaphragm and the abdominal muscles compress the gall-bladder and force out its fluid, the inverted motion alluded to, expels it. Emetics in this way promote the secretion and evacuation of bile, and perhaps of the pancreatic liquor.

But it has been maintained by some, that the bile thus thrown out, exists in the stomach previously to the inverted peristaltic motion. This may sometimes be true, though, were it uniformly the case,

we should have the bilious discharges in the first paroxysms of vomiting, which we know rarely happens.

On more than one occasion, I have expatiated on the extensive dominion of the stomach over the whole animal economy, and especially as relates to the surface of the body. By virtue of this intimate connection, one of the primary effects of emetics is, to induce an universal relaxation, approaching, in some instances, even to syncope; of which state of the system the extreme vessels partake, and as a consequence, perspiration breaks out, from which, if kept up by proper means, results the most salutary sometimes take place. There are, however, some writers, who deny that so close a sympathy prevails between the stomach and the exterior surface, because diaphoresis is not uniformly the consequence of vomiting. But I really cannot perceive any force in this objection, since it proves, at most, only, that emetics, in common with all other remedies, are sometimes precarious in their operation.

An effect of this class of medicines, not less obvious, is the promotion of absorption. No one has attempted to withhold from them this valuable property, though the precise manner in which this is accomplished, is not so manifest to all. It has been contended, that they act immediately on the lymphatics, exciting these vessels to an increased effort. To me, however, it appears, that a solution of the

difficulty is to be sought in an entirely opposite state of things.

Whoever carefully attends to the phenomena of absorption, will be persuaded, that this function is always most vigorously carried on when the body generally, and especially arterial action, is much reduced. Of this fact, indeed, we can have little doubt, as it is confirmed by the clinical experience of every practitioner, and hence the conclusion is, that our medicines invigorate absorption by an indirect effect.

But emetics would seem also powerfully to act on the kidneys, and in some instances, certainly produce a copious flow of urine. Whether this is owing to an inherent diuretic property in the medicine, or to the quantity of drink taken at the time, or to the mechanical compression of the organs during vomiting, or to the mere promotion of absorption, has not been satisfactorily determined. My conviction is, that they promote the urinary discharge independently of absorption, since I have witnessed this effect in cases where no dropsical effusions existed.

Every one is aware of the very intimate connection which subsists between the stomach and head. The effects of emetics on the brain are, on this account, very conspicuous, and form, as we shall hereafter see, a very important class of remedies in the management of many of the affections of the head.

Nor, perhaps, have they a less striking affinity

to the pulmonary organs. As soon as nausea takes place, we may remark a copious flow of saliva, and a discharge more or less from the bronchiæ, which, when vomiting is induced, becomes considerably augmented.

Before I proceed to the application of emetics to the cure of diseases, I shall suggest a series of precepts to be attended to in their exhibition.

1. When the vessels of the head are full, or other symptoms of plethora exist, the emetic should always be preceded by the loss of blood. Two advantages result from this practice. It renders the vomiting safe, and more easy and effectual. By neglecting this admonition, many a life has been either endangered, or sacrificed, by apoplexy or hæmoptysis.

2. When the necessity is urgent, and a certain and powerful operation is demanded, give a large dose, and of the most active species.

3. In ordinary cases, minister the medicine in divided quantities, so as to guard against too violent an effect.

4. Where the object is to make a strong impression on the system, little drink should be allowed. But if the design be to evacuate the contents of the stomach, large draughts of tepid water, or some other light drink, as warm chamomile tea, will promote this end, and, at the same time, facilitate the vomiting.

5. As a general rule, emetics should always be

given on an empty stomach, and in the morning. They act with greater certainty, and with less distress to the patient. They will, however, answer very well in the evening.

6. To check inordinate vomiting from too large a dose of emetic medicine, direct laudanum, combined with some cordial, apply fomentations to the pit of the stomach, and sinapisms to the extremities. Chicken water copiously drank is sometimes useful, by turning the action downwards. When these fail, anodyne injections may be resorted to, and a large blister should be put on over the epigastric region.

DISCOURSE V.

On the Practical Application of Emetics.

CLOSING the preceding inquiries, I am next to point out the use of emetics in the treatment of diseases. But in making this practical application of our remedies, I shall enumerate only the more prominent cases in which they are employed.

In fevers of every species, emetics have been prescribed, and commonly with success. These, for the most part, are accompanied in the commencement with nausea, vomiting, and other symptoms indicating a disordered state of the stomach. Emetics, under such circumstances, are productive of much advantage, and have been recommended from the earliest times. Even Hippocrates was apprised of their utility, and the practice seems to be the obvious suggestion of nature.

Emetics, in these cases, clear the stomach of its noxious contents, and prepare the way for the reception of other remedies. But they are not always indispensably necessary, as the stomach may sometimes be appeased by an agreeable mixture, such as the neutral or effervescent draught, and then a mercurial purgative substituted. Yet, where the attack is exceedingly vehement, whatever may be the

type of the fever, whether it be intermittent, remittent, or continued, we should never fail to resort to the emetic, and even to repeat it, if a very successful impression be not made on the case by the first exhibition. This precept, however, is more applicable to the bilious fevers of our own climate, and especially as they occur in the southern states, where they prove exceedingly intractable under any other mode of treatment.

As respects the use of emetics in the more malignant fevers, medical opinion is, perhaps, not so decided. They were, at one period, very much prescribed in the commencement of the typhus gravior as well as the mitior of the nosologists, and even now are not altogether neglected. The innovation, in this case, partial as it is, has been no improvement, nor are the views which led to it at all correct. Emetics, however beneficially they may operate as mere evacuants, produce effects not less salutary in another way. Whatever may be the cause, fever is always a disease of sympathy, having the primary link of its ultimately lengthened and complex chain, in the stomach. It is upon this organ that contagion, marsh effluvia, and other noxious matters act, and hence, precisely as in the cases of poison, a local irritation at first occurs, which, if not at once arrested, spreads itself by multiplying the trains of morbid association, till the disease becomes general, involving, more or less, every part of the animal economy.

Either, therefore, to expel the offending cause from the stomach, or to subvert the nascent impression which it has created, before it becomes invigorated, diffused, and fixed, an emetic is obviously the remedy for the purpose. Nor does the utility of this practice rest solely on speculative grounds. Experience, on the contrary, has long since proved it, in the malignant fevers of Europe, not even excepting the plague, and confessedly, its efficacy was great in that shape of pestilence, which for a series of years so severely desolated our cities. Yet, it cannot be too often repeated, or strongly impressed on the mind of the practitioner, that it is in the forming state of this description of fevers, that emetics are at all admissible. Exhibited in the more advanced stage of the case, or after the disease is absolutely confirmed, and pervades the system, they not only prove wholly incompetent to its removal, but generally heighten the worst symptoms, and augment the difficulty of cure. This effect was most remarkably exemplified, in the treatment of our yellow fever, and has been remarked in some other epidemics, as the plague, &c.*

* The efficacy of emetics, given on the principle which I have suggested, did not escape the sagacity of Sydenham. "When it have happened," says he, "sometimes carefully to examine the matter thrown up by vomit, and found it neither considerable in bulk, nor of any remarkably bad quality, I have been surprised how it should happen, that the patient should be so much relieved thereby; for, as soon as the opera-

Emetics have of late been much recommended, in puerperal fever. This is a disease which so often proves obstinate in its career, and fatal in its issue, that every suggestion relative to its cure is worthy of our attention. What renders this fever so very unmanageable, it is not easy to determine. We hardly know even the seat of the complaint, or, much difference of opinion, at least, exists on this subject. My own impression is, that it has its origin in a primary irritation of the uterus, and that the peritonæum, in the more violent cases, takes on sympathetic inflammation. To this conclusion, I am inclined, not only from what I have observed in my dissections, but from the peculiar malignity which often distinguishes the disease.

It is an interesting fact, and one, of which, perhaps, we are not all apprised, that peritoneal inflammation, when permitted to attain any height, is hardly ever cured, or, certain it is, that it constitutes one of the most difficult cases to contend against, in the whole circle of morbid affections.

tion was over, the several symptoms, viz. the nausea, anxiety, restlessness, deep sighing, blackness of the tongue, &c. usually abated and went off, so as to leave the remainder of the disease tolerable." Commenting on this passage, Wallis, the annotator on the work from which it is extracted, very correctly observes, that "Sydenham was not aware of the sympathetic affections which take place in the constitution, nor knew that an extremely small portion of morbid matter could produce effects so sudden and surprising, from local action, so as to derange the whole system."

The employment of emetics in puerperal fever, is not a new practice. But they got out of vogue, and we heard little of their use till recently, when the practice was revived by an English writer, who advises it to be trusted to exclusively, which, surely is the language of enthusiasm. I have several times prescribed emetics in puerperal fever, not so much to meet the general indications of the disease, as to relieve one most distressing symptom. The stomach is here not unfrequently loaded with a dark offensive matter, resembling the black vomit of our pestilential fevers, which occasions great distress and sickness, and if allowed to remain, uniformly keeps up fever, and depresses the system into a typhoid state. To evacuate this noxious matter, an emetic is indispensable, and its operation, in some instances, will be followed by effects the most prompt and satisfactory.

Many years ago, emetics were strenuously recommended in hæmoptysis, by Dr. Robinson of Dublin. But the practice was not much followed, having been tried by Cullen in particular, and abandoned on account of its temerity. No doubt, however, emetics will very frequently check hæmorrhages from the lungs. I have seen spontaneous vomiting do it in several instances, and, on one occasion, I witnessed the worst hæmorrhagy of this sort, which ever came under my notice, completely suspended by a dose of digitalis which puked

violently. But still, I concur with those writers who hold the practice to be hazardous, and never would resort to it, except under extreme circumstances, and where milder remedies had totally failed. I speak, at present, in relation to those cases in which there is a copious hæmorrhagy, in consequence of the rupture of a vessel of some size. But where there is only a slight raising of blood, mixed with the matter expectorated, as commonly happens in tubercles of the lungs, emetics may be administered with perfect safety, and sometimes with no little advantage. They divert the blood from the lungs, they promote a more equable circulation, they remove cutaneous constriction, they calm the general condition of the system, and thus lessen the anxiety, cough, sanguine evacuation, and difficulty of respiration. It is in this way, that we, in part, imitate the effects of a sea voyage, and command some of its advantages.

Emetics have also been much recommended in menorrhagia. When I come to discuss the subject of emmenagogues, I shall endeavour to shew, that menstruation consists, not in a simple efflux of blood, but, that the fluid is the result of a secretory action of the uterus. As a part of this doctrine, I shall maintain, that all copious discharges from the uterus of this sort, are to be considered as

hæmorrhages, and not, as has hitherto been held, a profuse or immoderate discharge of the catamenia.

I cannot, from my own experience, speak of the use of emetics in this species of hæmorrhagy. I have never employed them, or seen them employed. If the woman were of a robust frame, and with a tolerable degree of strength remaining, perhaps an emetic might be exhibited beneficially. I should, however, even in this case, which I deem the most favourable to the use of the remedy, greatly prefer venesection, and, at all events, nauseating doses of the medicine. Thus administered, emetic substances are eminently serviceable. They were originally recommended in this manner by a Swedish writer, whose name has escaped my recollection, and by the celebrated Bergius, this practice was soon afterwards adopted, and if his reports can be credited, with no ordinary success. By another professor in the university of Upsal, of the name of Althof, the same remedy has been employed, and we are told, with similar effects. He even declares, without the slightest reservation, that he never failed in a single case. I am not prepared to go half so far, though I must say, that I have the highest confidence in this plan of treating uterine hæmorrhagy. I have been in the habit of pursuing it for many years, and in numerous cases. The result of this enlarged experience, is a complete

confirmation in my mind, of what had been previously said respecting its superior efficacy.

Every practitioner is acquainted with the utility of emetics in cynanche trachealis. This is not the place for me to expatiate on the nature and treatment of this very formidable disease. I cannot, however, pass it over without some few observations.

Croup has been divided into spasmodic and inflammatory, and not a little discussion has taken place on this subject. It would seem to me, that in all cases where it suddenly attacks, it must partake of the nature of spasm. The early symptoms correspond exactly with this view of its pathology, and dissections fully confirm it, shewing, where death promptly happens, none of the phenomena of inflammation. But, under opposite circumstances, or where the disease slowly comes on, or is the effect of inflammation of other parts, extending to the trachea; then, of course, it is of a contrary nature, and inspections after death have revealed exactly such appearances as might have been anticipated.

Admitting, however, the distinction contended for, I am not aware that it leads to any practical difference, and especially as relates to the use of emetics. No one disputes the indispensable necessity of puking actively in the commencement of an attack of this disease, whatever theory may be entertained. But unhappily, as I have before re-

marked, croup is one of those cases in which we often have to encounter very great difficulties in getting the remedy to operate. What is now to be done? My experience teaches me, that nothing is so effectual as the warm bath, and where it fails, venesection, in extreme cases, even *ad deliquium animi*. Never have I witnessed one solitary instance in which these means combined, did not succeed in awakening the susceptibility of the stomach to the action of the emetic, and effecting all which can be expected from the most free and copious vomiting.

But in a more advanced stage of croup, emetics are scarcely less demanded. The disease having been permitted to continue for eight or ten hours, and sometimes even for a shorter time, it extends itself to the bronchiæ, and into the very substance of the lungs, producing vast accumulations of mucus and phlegm, or an engorged state of these organs, as in peripneumonia notha. The lungs, now loaded and oppressed, very imperfectly execute their functions, which is indicated by all those symptoms incident to such cases. Emetics, cups, or leeches, and blisters, applied to the back, afford the only means of relief.

Besides cynanche trachealis, emetics are favourite remedies, with many practitioners, in some of the other anginose affections. They have especially been prescribed in the malignant sore throat,

and doubtless with considerable utility. I have sometimes given them, when the stomach was distressed with nausea, probably from an accumulation of the feculent matter incident to the complaint, and not only afforded relief in that respect, but have improved very much the condition of the ulcers about the fauces, which being cleansed, take on a disposition to heal. It was formerly the universal practice, and is still recommended by some writers, to excite active vomiting for the purpose of rupturing the abscess in the severer attacks of cynanche tonsillaris. The plan, though undoubtedly often effectual, was uniformly productive of great pain, if not danger to the patient, and is now abandoned by the best practitioners, as wholly unnecessary, the abscess being very readily opened by puncture.

In most of the complaints of the chest, emetics are liberally employed. As expectorants, we all know their utility. Even in some of the acute affections, and especially in the peripneumonies of old persons, they are eminently serviceable by emulging the bronchial vessels, and re-establishing an equilibrium in the circulation. It was on the same principle, that they were so beneficially employed in the pneumonic forms of our late winter epidemic,* and have been found, in short, so serviceable in all cases of engorged or suffocated lungs, attended with feeble action.

* The peripneumonia typhodes

Emetics, of course, are also advantageous in asthma. The distinction which has been instituted in this disease, of *humoral* and *spasmodic*, seems in some instances to be correct, and perhaps the two species may occasionally exact some modification of practice. But, as relates to the use of emetics, I suspect the distinction need not be very nicely observed. They generally afford relief in the paroxysm, and, if timely administered, will sometimes prevent the recurrence of it.*

Of the various remedies which, at different periods, have been suggested for the cure of pertussis, or whooping cough, I know of no single one from which I have derived such good effects, as emetics. They are, however, chiefly applicable to the earlier stages of the complaint, and where the attack is violent, must be repeated daily, or even twice a day, for a week or two in succession. By steadily persevering in this course, and with the use of the auxiliary means, which I am hereafter to indicate, we shall generally be able to conduct the case to a comparatively speedy and successful issue, provided it be that of a child, as the remedy is not so well adapted to persons in more advanced life.

Emetics have been extolled in the treatment

* Cullen, I am aware, holds a more qualified language on this point. But I cannot help thinking he does so incorrectly, and especially as regards the distinction which he takes between the spasmodic and the pituitous or catarrhal species of the complaint.

of acute rheumatism. As yet, I have never used them in any of the forms of this disease, with one exception only, and must therefore advance my opinion with diffidence on the subject. The particular exception to which I allude, is that species of rheumatism originating in districts exposed to marsh exhalation, and where the attack, as sometimes happens, is blended with intermittent or remittent fever. They here prove serviceable, on a principle perfectly intelligible. Nor have they been less commended, in the analogous affection of gout. They were formerly administered for the purpose of evacuating morbid matter which was supposed to be accumulated in the alimentary canal, and it is said, they mitigate pain and abridge the paroxysm. That this is sometimes the case, I can readily believe, having observed the same effects in this disease, from purgatives, as I shall more particularly mention in a subsequent discourse. Like rheumatism, gout is, in some instances, associated with fever of the intermittent or remittent type, and these cases, which are to be met with in low countries, or in persons who have been transiently exposed to marshy exhalations, often require for their cure, the exhibition of an emetic, and even the use of the bark.

As might be expected, emetics have unquestionably done much good in dyspepsia, and other depraved conditions of the stomach. My first step

generally in the treatment of these gastric affections, is to resort to this remedy. By the use of it, we now and then succeed in so completely reforming the state of the stomach, as by it alone to put an end to the complaint, and where this does not happen, we at least pave the way for the introduction of other means. Emetics, judiciously repeated for a time, a regular course of tonics, and a diet consisting chiefly of milk and the lighter meats, without vegetables, will rarely fail to cure indigestion, and all its concomitants.

To some of the bowel affections, emetics are well suited. It was usual with Sydenham, and his example has since been imitated by many, to commence the cure of dysentery with exciting vomiting, which he advised to be followed up by copious draughts of some thin beverage, to cleanse more completely the stomach. Of the propriety of this practice, I am not prepared to speak from any personal experience. It may occasionally be necessary in the early stage of the disease, where the stomach is loaded, as sometimes happens, with bilious or other foul matter, creating nausea and distress. Cases of this sort are common in countries subject to intermittent fever, and the bowel affection will put on more or less of this type, and here the remedy is highly useful.

Emetics, in diarrhœa, are still more employed, and their utility, perhaps, is less disputable. But the complaint is dependent on such a variety of

causes, and assumes such different shapes, that it is difficult to indicate, in a mere summary, the precise cases to which the remedy is applicable. Of course we should not hesitate to prescribe it, where there was reason to suspect the diarrhœa to be caused, or kept up, by a disordered stomach. Under these circumstances, it will always operate beneficially. Besides relieving that organ of its irritating contents, it checks purging by inverting the peristaltic motion, and relaxing the skin, it produces perspiration, which, on account of the intimate connection between the surface of the body and the alimentary canal, is salutary in these cases.

On a future occasion, I shall enter more fully into a discussion relative to the pathology of those diseases which are embraced in the class of neuroses, or nervous affections. My object will be to shew, that it is highly probable, that every one of the series has its origin very often in the alimentary canal, and, sometimes, in the stomach itself, and can only be successfully treated, by our keeping this fact steadily before us.

After this declaration, it is hardly necessary to mention, that I consider emetics as among the most important of our means, in the management of these cases. Of the class of neuroses, however, the one which appears to me sometimes, to be most unequivocally a gastric affection, is epilepsy. Entertaining this impression of the nature of the disease, I have freely prescribed emetics in it, and with manifest

advantage. By exhibiting them just before the accession of the paroxism, they will often prevent it, and even if they do not altogether resist it, they render it milder, and of shorter duration. Nor is this all which they accomplish. By the strong and direct impression made on the stomach, the commencement in that organ of the wrong association constituting the disease, is broken, and afterwards the case yields to those remedies which we denominate tonics.

The very close connection which is known to exist between the stomach and head, has induced practitioners to rely greatly on emetics in many of the cephalic affections.

Much has been said of their utility in that distressing complaint which is denominated the sick headache,* one of the most heavy of the curses which are entailed on the sedentary and the studious, as well as on those of delicate and valetudinary habits. This is unquestionably a purely gastric affection. It recurs periodically, and is always preceded by nausea, sour eructations, and the other indications of imperfect digestion. But evacuations of the stomach will not alone cure it. The bowels must also be kept open, and the strictest attention to diet is demanded.

Emetics are very frequently directed in apoplexy. This disease may be seated either in the brain or stomach, though it is most commonly

* Fothergill's Works.

brought on by congestions in the latter viscus, the result of debauchery and excess. When thus occasioned, vomiting is obviously the proper remedy.

Encouraged by the success of emetics in apoplexy, some practitioners, and especially of the continent of Europe, have recently urged the use of them in palsy. I have no experience on this subject, though, were I to determine from the great efficacy of the drastic purgatives in some instances of this affection, I should not hastily condemn the practice.

Of the utility of emetics in mania, much has been said. But the circumstances in which they are applicable, have not, so far as I know, been very accurately discriminated. No one, I presume, would think of exciting vomiting in the more violent forms or states of the disease, where there is great arterial action, with high excitement of the brain. Nauseating doses, in conjunction with copious bleedings, would be here certainly preferable. They, in a very peculiar manner, subdue fever, reduce excitement, depress muscular power, and restore the mental and corporeal quietude of the patient. Nausea, thus kept up, will, in some cases, do more in these respects than any other course of treatment.

It may, perhaps, be proper for me to repeat here, a remark which I formerly made, that mania is one of those diseases in which the stomach loses, in a most extraordinary degree, its susceptibility to the

operation of medicines, and particularly to emetics. This I am inclined to believe is even more conspicuously evinced in melancholia than violent insanity. Whether this torpor of the stomach is the cause, or effect, of the morbid state of the brain, cannot be stated positively. But of this there is no doubt, that its removal, as in croup, is a pretty certain sign of a speedy convalescence. As this seems to be the case, would it not be right, to address our remedies more directly to this organ, with a view of arousing it out of its indolent and torpid condition? To meet this indication, nothing promises so completely as a succession of our most active and stimulating emetics. The effects of emetics in two or three cases of this description, under my care, have, indeed, very much strengthened these speculative notions, and authorize me to recommend the practice, with no small confidence of its future success.

By a very ingenious physician of this city, Dr. Klapp, this mode of treating one species of insanity, the *mania à potu*, or, as he terms it, from *Sauvages*, *mania à temulentia*, has been adopted, and, according to him, its superior efficacy is fully and indisputably confirmed. To this course, he says, he was led, by often remarking, that the subjects of derangement from intemperance, are very apt to labour under vomiting for several days before they become affected, and that, when the mental disease begins, the vomiting ceases: and also, by having

seen, that spontaneous vomiting, when it recurs, in these cases, is generally attended with beneficial consequences.*

Of the practice, as here applied, I cannot speak from my own personal observation, having always been so well satisfied with a different plan of managing the disease, which I shall hereafter mention when I come to discuss the properties of opium, that I have not been induced to deviate from it in a single instance.

By some practitioners, emetics have been proposed in hydrocephalus internus. By a very attentive observation of its phenomena, as well as from the lights of dissection, I have come to the conclusion, that the name hitherto conferred upon this disease, is a misnomer, proceeding from an erroneous pathology. Most commonly, at least, the disease does not depend on an accumulation of water in the ventricles of the brain, but consists in an altered state of that organ, arising from a primary derangement in the chylopoietic viscera, and particularly of the stomach. Emetics are, therefore, occasionally useful, though I should administer them on a very different principle from that on which they have heretofore been supposed to operate. It would be to make an impression on the parts in which I presume the disease to be seated, and not to promote the absorption of effused fluids. They are especially called for

* Eclectic Repertory, vol. vii.

where the stomach is oppressed with bile, or other matters, as sometimes happens. But I shall say more on this subject, under the head of the mercurial preparations.

Externally, the head is liable to very acute, and sometimes even to excruciating spasmodic pains, attended by an exquisite tenderness of the scalp, and though this complaint may not hitherto have arrested so much attention as to be accurately described, it has not altogether escaped notice. The plan of treatment pursued in this city, in some instances, after various other remedies had failed, was, to cut through the integuments, under the conviction that the case partakes of the nature of *tic douloureux*, and that, by dividing the affected nerve, a cure might be accomplished. What was the precise degree of success of the practice, I cannot say, though I suspect it afforded little encouragement, as I do not learn that it has often been repeated.* Early adopting the notion, that this complaint proceeds from a morbid condition of the stomach, the only two cases of it which have come under my care, I managed by emetics, and had reason to be entirely pleased with the result. Even genuine *tic douloureux*, the neuralgia of some writers, has been cured, in several instances, by this same practice, and with such facility, as to

* The practice has been tried in England and failed. *Bendingfield's Medical Practice.*

place it decidedly above all other modes of treating this most painful, and hitherto intractable affection.

The credit of employing emetics in this case, seems due to Dr. Physick, and is one of the many valuable contributions which the profession has received from his ample resources. Yet, it is not to be concealed, that there is a passage in the writings of Mr. Abernethy, which shews, that he also has adopted the same view of the pathology of the case, though he appears to have attained the end by means somewhat different, and perhaps not quite so prompt and efficient.*

In ophthalmia of a very obstinate kind, emetics have of late been prescribed, and with great advantage. This practice has been strenuously recommended by Mr. Dauson, a surgeon of eminence in London, and was found peculiarly serviceable in that species of the disease which prevailed so extensively among the British troops, during the campaigns in Egypt.

It is, perhaps, not generally known, that Richter, a writer whom I shall often have occasion to cite in the progress of these discourses, maintains, that many of the diseases of the eyes proceed, more or less, from a disordered state of the chylopoietic

* "In the cases of tic douloureux, which have fallen under my observation, there has been great disorder of the digestive organs, and I have known cases resembling those of tic douloureux cured by correcting the unhealthy state of these organs." *Abernethy on the Disorders of the Digestive Organs.*

viscera, though chiefly the stomach, and this he thought to be especially the case as regards amaurosis.

No one of the time had half his reputation, in the management of this complaint, and, of course, an equal experience. His fame, indeed, was so diffused, owing to his unrivalled success, that persons afflicted with it resorted to him from all the countries of Europe. He deduced his practice directly from the theory of the disease, which he had adopted.

Considering it primarily a gastric affection, he directed the free exhibition of emetics, and afterwards a combination of tartarized antimony, with some other articles, to keep up a constant impression on the stomach.

Extraordinary as this hypothesis may seem on the first view, I am convinced of its correctness. The more we study the economy of the stomach, the more we shall be enlightened on the pathology of diseases, and especially those of the head. My practice has afforded me several cases of very violent and intractable ophthalmia, that I could trace directly to a vitiated state of the stomach. Accumulations of bile in that viscus, have long been known most distressingly to disorder the head, and partially to affect the eyes, though the more painful and obstinate inflammations of these organs have not hitherto, I believe, been ascribed to this cause. That, however, it does occasionally produce them, I am most entirely persuaded, and of this, at least,

there is no doubt, that they are at once relieved by emetics. Depraved vision, I have several times seen from spasms of the stomach, and one case, perfectly well authenticated, is in my possession, where total blindness took place, and continued for many hours, in consequence of a severe attack of bilious colic, and which was ultimately removed, by copious evacuations from the alimentary canal.

On a previous occasion, I adverted to the active promotion which absorption receives from the operation of emetics. It may, therefore, be presumed, that these medicines have not been neglected in the various forms of dropsy. They are undoubtedly useful in this disease, though it is not very easy to designate the precise cases to which they are applicable. As a general rule, I may observe, that emetic medicines, exhibited with a view to their nauseating effects, are to be preferred. But where dropsy is conceived to arise from congestion, or obstruction of the biliary organs, from gall stones or spasm, active vomiting has often been productive of decisive advantage. It acts under such circumstances, either by mechanical force, or, by inducing universal relaxation, removes the spasmodic constriction of the ducts, and it is in the same way, that it proves so serviceable in many instances of jaundice.

There is, however, another case in which emetics are beneficially prescribed. It seems to be admitted, that where dropsy is connected with the in-

termittent fever, as often occurs in situations exposed to miasmatic exhalations, evacuations from the stomach are in some instances imperiously demanded.

Nevertheless, it is to ascites and anasarca, that this practice is chiefly restricted; no one, I believe, having ventured to try it in hydrothorax, and though recently some cases of hydrocele are reported to have been cured by emetics, it was not so much by vomiting, as by nausea very long and perseveringly continued.

In diabetes, emetics have sometimes been deemed necessary. They are mentioned by Richter, as having very speedily cured a case of the disease, which succeeded to fever, by the discharge of a large quantity of bile, and as the stomach appears always to be more or less concerned in this disease, the remedy might probably be more frequently resorted to, with advantage, than has heretofore been done.

Emetics were at one time much employed in several of the affections of the male organs of generation. I have already mentioned, that of late, they are reputed to have cured hydrocele. Long since they were resorted to in the indurations, and other morbid states of the testicles. But they seem now to have lost their reputation, or rather have sunk into disuse, in all these cases, except hernia humoralis. Of their efficacy here, no one doubts, yet, being a disagreeable remedy, and as we have other

modes of treatment equally successful, are rarely used.

On precisely the same principle, they have been frequently administered in the discussion of buboes, and other glandular tumefactions. The strong and decisive tone in which Mr. Hunter has asserted their superior powers in the venereal swellings alluded to, had, indeed, once the effect of inspiring the greatest confidence in their utility. I am inclined to believe this confidence was not misplaced. But, for the reasons already assigned, the practice has not often been imitated by me. The case to which the remedy is more peculiarly appropriate, is that of indolent or inactive bubo.

Emetics have been prescribed in the bites of venomous reptiles, inducing constitutional affections. This was originally an oriental practice. But I have understood that it is at present a good deal followed throughout our western country, where people are often bitten by the rattlesnake and other poisonous serpents. Of the utility of the remedy, I cannot speak from my own knowledge, though, as in all cases of morbid poisons, the stomach is always very seriously, if not principally affected, I am disposed to entertain very favourable impressions of the remedy.

To induce extreme relaxation of the system, by the exhibition of emetics in nauseating doses, is one of the resources of surgery. Of the cases in which it has been resorted to, incarcerated hernia is one.

Nauseants have, under these circumstances, been advantageously used in this city, and, by a surgeon of England it appears, that they are still more successfully employed in the reduction of luxated limbs, by overcoming muscular resistance.

Nor has the same remedy been neglected by the practitioners of midwifery. It was at one period much prescribed by them, in order to induce relaxation in obstinate parturition, dependant on rigidity of the passages. Exceedingly plausible in theory, it however totally failed when reduced to practice. I have tried this means, and have seen the experiment made by others. The effect was, a very great degree of general relaxation, and distress, without at all facilitating the dilatation of the parts, or in any manner promoting the labour, and hence the practice has been abandoned.

With the same view, emetics were once directed in tetanus, and other violent spasmodic affections; but whether with any advantage, as ordinarily administered, does not very clearly appear.

DISCOURSE VI.

On Particular Emetics.

IN looking back on what has been said on the use of emetics, we cannot help being struck with their great value, as means of combating disease, and at their wide and diversified application in the practice of our profession. Exceedingly disagreeable in their operation, they have, by a false refinement, been permitted to be laid aside, or superseded by other remedies, or modes of treatment, which, in my opinion, are less efficacious. To the complaints of children, emetics are especially adapted, and, since the effort of vomiting in early life is productive comparatively of little distress, fewer objections can here be alleged to this class of medicines.

Extensively beneficial as they are, we have, however, cases in which emetics must be resorted to with great circumspection, and some, where they are even wholly inadmissible. The danger of prescribing them, under circumstances of plethoric tendencies, I have already noticed. Equally are they prohibited, in all high degrees of visceral inflammation, and more particularly in that of the alimentary canal. To these cases may be added, an extremely debilitated system from any cause,

and finally, the advanced state of pregnancy, or where a prolapsus uteri, or hernia exists. Next I am to treat of particular emetics, which I shall arrange according to their effects on the system, either as they are lenient or active, and first:

OF THE MILD EMETICS.

Contemplating this class, there is no one article which strikes me as having such strong claims to our attention as ipecacuanha. Though this medicine was long employed in practice, it has only been recently known to what genus of plants it belongs. It is now clearly ascertained, that the genuine ipecacuanha of the shops, is the root of a pentandrous plant, the *cephælis emetica* of some botanists, and the *callicocca ipecacuanha*, of other writers. It is a native of South America, and I believe has been discovered no where else; we have, it is true, a plant in this country, which approaches near to it in its medicinal properties, and its general resemblances, though it does not altogether agree with it in its botanical affinities.

Of the root of ipecacuanha, the only part of the plant used, there are several varieties imported, of which the ash-coloured is the best, and is the sort most commonly to be met with in the shops. It is derived from Peru. That cultivated in other districts of the southern continent, is not possessed of such active properties.

The Peruvian ipecacuanha comes in small wrinkled pieces, externally brown, and internally somewhat whiter. It has a faint smell, and a bitter, slightly acrid taste, containing both a resinous and gummy matter. It was once supposed that its emetic power, and, indeed, all its virtues, are resident in the former, but it is affirmed by Dr. Irvine, that they are contained in the gum.

Ipecacuanha is the mildest of the emetics which are, at the same time, certain in their operation. It evacuates the contents of the stomach, without exciting violent vomiting, and is, therefore, peculiarly adapted to a large circle of cases. Much has been said respecting the proper doses of this medicine. In many cases, a single grain will create sickness, and excite pretty active puking, yet it is asserted, that the Brazilians commonly administer a drachm at a time, and only experience from such a gigantic dose the desired effect. But, perhaps, they do not employ the most active species of the medicine. It is also to be recollected, that ipecacuanha is one of those emetics which generally come up with the first effort of vomiting, and, if tepid beverages be not drunk, leaves the stomach in a state of composure. As such is the case, a very large quantity might be given without producing any injurious, or even increased effects. It is stated by Cullen, as a general rule, that “to excite vomiting, and especially repeated vomitings, we cannot depend on a dose under ten grains, and frequently a larger dose

is required." But it seems to me, that this quantity is too small for the purposes assigned. As an averaged dose for an adult, I conceive a scruple little enough, and even this will produce very inadequate effects, unless it be assisted by warm water or some other drink. My practice is, where I deem it expedient to give activity to the ipecacuanha, to combine with it a grain or more of the tartarized antimony, and this indisputably constitutes, for many purposes, the most valuable of our emetic preparations.

I have already hinted at the inestimable properties of this medicine in particular diseases. Distinct from its emetic property, ipecacuanha has been recommended as having peculiar powers in most fevers. But on trial, it was found, in the estimation of practitioners generally, inferior to the antimonial preparations, and is now, I suspect, not much employed. If it retains any share of confidence, I am inclined to believe, that it is in intermittent fever, a case in which, at least, at one time, it was supposed to evince something approaching to a specific power. By Cullen, especially, it is stated, that he knew a respectable practitioner who broke the paroxysms of this disease by administering the ipecacuanha at the accession, or end of the cold stage. But here I would ascribe nothing to the peculiar properties of this medicine, having done as much with other emetics, and especially the tar-

tarized antimony, which I, indeed, prefer in these cases.

Exhibited with a view to its nauseating effects, our medicine is an exceedingly important one in hæmorrhage of every description. Many practitioners of respectability bear testimony to its good effects in hæmoptysis, though it is in uterine hæmorrhagy that it displays its best powers. In these cases, I really think it is quite equal to the saccharum saturni, and sometimes, is even to be preferred to that useful medicine. To do good here, it must only be prescribed in nauseating doses, as, when urged so as to create vomiting, I am afraid it proves mischievous. Let me, however, be not understood as saying, that this is always the consequence of vomiting in hæmorrhagy. The contrary sometimes, indeed, happens. I have known, myself, uterine hæmorrhage to cease by the coming on of spontaneous puking or retchings. But perhaps there is a distinction to be made between a natural and artificial effort of this kind, the one being often salutary, while the other is pernicious.

The effects of small doses of ipecacuanha, are sometimes really altogether astonishing in checking uterine hæmorrhagy. I have remarked in several cases, that the moment the nausea was induced, the flooding ceased. By what precise mode of action it causes such an effect, is a point on which there is no unanimity of sentiment. It cannot be by the astringency of the medicine, as some have alleged,

since the most powerful astringents will not do it, and besides, ipecacuanha does not appear to possess this property in any degree. It was contended by Murray,* that it is to be referred to the antispasmodic qualities of the article, and the same hypothesis has been adopted by several subsequent writers. But admitting that ipecacuanha is eminently antispasmodic, of which we have very slender proof, there are other medicines confessedly more powerful in this respect, which produce no such effect. Neither of these explanations is therefore at all satisfactory. May it not operate simply by inducing relaxation and debility, thereby diminishing arterial action, which so uniformly has a tendency to suppress effusions of blood? My mode of administering ipecacuanha in uterine hæmorrhage is, to combine two grains of it with half a grain of opium, and give this dose every two or three hours, as may seem necessary.

Next to its use in hæmorrhages, our medicine is, perhaps, most celebrated in the several affections of the alimentary canal. In dysentery, particularly, it is eminently useful. After evacuating the stomach and bowels sufficiently, I begin with giving the medicine very much in the same way as I have mentioned in uterine hæmorrhage. It very soon affords relief to the more distressing symptoms, and ultimately effects a cure. By some practitioners, it has been thought, that the ipecacuanha is more es-

* Apparatus Medicaminum.

pecially adapted to those cases of the disease where there are great discharges of blood, amounting almost to hæmorrhagy, from the bowels. This opinion, from the general powers of the medicine, is, perhaps, correct. But, in every form of dysentery, it is useful, though I think I have employed it to most advantage, where the pain has been great, and the desire to stool frequent and ineffectual.

The efficacy of our medicine in this disease does not rest on my own authority. It has been employed for the last half century, by the most celebrated practitioners in every quarter of the world, and has extorted from them the most unqualified commendations. Of its *modus operandi* here, we know as little as in other cases. We can hardly suppose, with Cullen and Sir George Baker, that it acts as a purgative, because other purgatives have not the same effect, and, as it does quite as much good when there is no evacuant operation from it.

By Mosely it is considered advantageous in dysentery, by relaxing the surface, and exciting diaphoresis. Whether this explanation be just, or not, it is more plausible than the other, and comports better with the obvious qualities of the medicine, and its known effects on the system.

Two other modes of administering the *ipecacuanha* in dysentery, have been employed. By a late writer,* it is recommended, in the shape of a clys-

* Clarke on the Nature and Cure of the Dysentery of the East and West Indies.

ter, three drachms of the bruised root, boiled in a quart of water down to a pint, which is to be repeated twice or thrice in the twenty-four hours. Of this I know nothing myself, though, other objections aside, we have always been taught to believe, that a decoction of ipecacuanha, is wholly an inert preparation. Much more confidence, I think, ought to be reposed in the second new prescription of the medicine to which I have alluded. Defeated in his attempts to cure dysentery by the ordinary manner of giving the ipecacuanha, Mr. Playfair,* a surgeon at Bengal, has used it with great advantage, in the dose of from a half to a full drachm, combined with from thirty to sixty drops of laudanum, confining the patient for some hours afterwards to a horizontal posture. If the first dose be rejected, the mixture is to be repeated, and is commonly retained. The practice, which is represented as exceedingly efficacious, is confessed to be only adapted to the very commencement of the attack, since, if it be at all advanced, the stomach becomes so irritable as to reject the medicine at once. By Mr. English, another surgeon on the British establishment, the success of this remedy is corroborated.†

Diarrhœa has also been treated by ipecacuanha. The case in which it is supposed to be suited, is

* Edinburgh Med. and Surg. Journal, vol. x.

† Ibid. vol. x.

well described by a writer on whose authority, I apprehend, it was originally introduced into the management of this disease. "We meet," says he, "with persons of both sexes, and different ages, who, from a variety of causes, have long been subject to habitual diarrhœas, sometimes accompanied with sickness, bitter taste, furred tongue, and some degree of fever; and sometimes, without these symptoms, yet, both liable to frequent discharges, often in the morning, sometimes in the night, and generally after taking any quantity of aliment, whether liquid or solid." Two or three grains of ipecacuanha in the morning, and an anodyne in the evening, to be repeated for some days, are represented as having succeeded in a number of cases, which had "obstinately withstood the efficacy of very opposite remedies. "

Of the use of our medicine in dyspepsia, I am not prepared to say much. It has been highly extolled by Daubenton, in his tract on the subject, and I have met with some respectable practitioners, who seem to place no slender confidence in its powers. As an emetic, no one questions its efficacy in this disease, though this is not the prescription to which I allude, the medicine being usually given in small and repeated doses, too small almost to excite nausea. Thus exhibited, it is alleged to act as an alterative. changing imperceptibly the state of the

stomach, till finally it restores the organ to its natural tone, and healthy actions.

Much stronger claims, most undoubtedly, has the ipecacuanha to our notice, in some of the pulmonary affections, and especially in asthma.* Confessedly it is here, to be preferred to all emetics. As far as I know, the practice of using it in this case, originated with Akenside, the poet and the physician. There is, at least, an excellent paper by him in the transactions of the London College of Physicians, on this subject. During the paroxysm of the disease, he administered a scruple of the medicine, in order to afford immediate relief, and in the intervals, from three to five grains every morning, to excite nausea and effect a permanent cure. Whether it produces vomiting or not, under such circumstances, he says, it is equally useful.

Given in very minute doses, sometimes alone, though oftener united with calomel and opium, our medicine has been liberally prescribed in the cough of the advanced stages of pleurisy and peripneumony, in that of ordinary catarrh, and even of consumption. But I will not anticipate what I have

* It is somewhat curious, that, though ipecacuanha is so efficacious in asthma, the odour which is emitted from the powder will produce, in some persons, a short and difficult respiration, approaching almost to this very disease. I have witnessed this in one case myself, have heard of another, and a still more extraordinary one is recorded in the Philosophical Transactions, part 1. vol. lxvi.

to say on this subject under the head of expectorants.

The medicinal virtues of ipecacuanha may be extracted by several menstrua, though wine is the one chiefly employed, and by which a preparation is formed called vinum ipecacuanhæ. This is a very neat medicine, and is sometimes substituted for the powder. It is well suited to children, and is accordingly often resorted to in their cases. As an emetic, the dose of the wine for an adult, is an ounce.*†

SPIRÆA TRIFOLIATA.

This is an indigenous emetic, which has acquired great reputation among us. It is afforded by a plant, which grows very plentifully in various parts of the United States, and is to be found even in the neighbourhood of this city. This is known by the above botanical title, and still more by the popular name of Indian physic. Like the ipecacuanha, to which it has been compared in more respects than one, the root is the only portion of the plant employed, though the stem and leaves are not

* Vid. Diaphoretics and Expectorants.

† *Incompatible substances*—All the vegetable acids, and especially vinegar. By decoction, its active properties are destroyed. They are, moreover, lost by keeping the ipecacuanha in powder, and more speedily, if it be exposed to the air and light.

destitute of active properties. The bark, much more than the wood of the root, has the emetic virtue.

Of this medicine, I have no very great experience. Many country practitioners, however, place such confidence in it, that it has nearly superseded the ipecacuanha in their hands. Enough I have seen of its use, to convince me of its powers to excite vomiting effectually, though leniently, and such, I suspect, is the amount of our information concerning its medicinal properties. It may, in common with the ipecacuanha, be applied to other purposes, though I have not heard of its having hitherto been done, except in the case of intermittent fever. On the whole, I am inclined to believe, that the spiræa will be an important accession to the materia medica, and should be glad to see the plant further investigated, and more variously and extensively employed. It is commonly given in the dose of thirty grains. The western states, afford a species of this plant which is said to be, in every respect, superior to the one I have described. But of this I know nothing myself.*

* By the present professor of botany in our university, we are told, that neither of these plants is a *spiræa*, but that they both belong to the genus *Gillenia*. To the first, he gives the name of *Gillenia trifoliata*, and calls the second *Gillenia stipulacea*.—Vegetable Mat. Med. of the U. States, by *W. P. C. Barton, M. D.*

ANTIMONIAL PREPARATIONS.

These can hardly be considered as lenient emetics. But the preparations of which I shall chiefly treat, are by no means harsh in their operation, and may, perhaps, on the whole, without much incongruity, be assorted with the preceding articles.

Antimony is a name bestowed on a peculiar metal, which is naturally combined with sulphur, and in this impure state, is collected out of the mines of several of the countries of Europe. Affluent, however, as we are, in such products, it has never, so far as I know, been discovered in any part of the United States.

The origin of the term antimony, is somewhat curious. It is related, that Basil Valentine, a German monk, much addicted to experimental inquiries, gave the crude antimony to some hogs, which it speedily fattened. Encouraged by analogy, he also, with the same view, administered it clandestinely to his brethren of the cloister, all of whom, however, died, and, from the circumstance of its proving so deleterious in this case, it acquired the appellation of *anti-monk*, and ultimately, by corruption, antimony.

Like most active medicines, this urged its way into the practice of physic with great difficulty. After very violent contentions with many of the medical men of the age in which he lived, Basil Valentine, whom I have just mentioned, succeeded in es-

tablishing its credit as an internal remedy. Elated by his success, he published a work exhibiting its properties, and his pride, which, in the plenitude of exultation, he entitled "*Currus triumphalis Antimonii.*" Nevertheless, the medicine soon relapsed into disrepute, and was once more brought into notice by the strenuous efforts of the wild and eccentric Paracelsus.

During the angry controversies, so long carried on between the disciples of the Galenical and chemical schools, relative to the employment of those active preparations, which the latter derived from the processes of their art, antimony was rejected or received, just as the one or the other party acquired the ascendancy. At this period it was, that a solemn act passed the parliament of Paris prohibiting, under the severest penalties, the use of this medicine in any part of the French dominions. Notwithstanding this, it continued to be occasionally prescribed in other sections of Europe, with a variable, and disputed reputation, till at last its efficacy was sanctioned by the approbation of Hoffman, and fully confirmed by the still higher authority of Cullen and Fordyce.

Nearly inert in its native condition, antimony, however, by its multiplied combinations, supplies us with a profusion of active remedies, amounting, indeed, most probably, to several hundred. To notice these in detail, or even to enumerate them, would be a most irksome and unprofitable employ-

ment. It fortunately happens, that the antimonial preparations, though of different degrees of strength, are characterised by considerable uniformity in their mode of action, and general medicinal properties. On many accounts, the antimoniated tartar of potash, or, as it is familiarly called, emetic tartar, is the one which is almost universally preferred in the practice of Great Britain and this country.

Being nearly insipid, without colour, inodorous, and very minute in the dose, it may sometimes be given with perfect facility, in cases, where it would be exceedingly difficult, if not impossible, to get down any other medicine. By reason of this, it is admirably suited to children, and, while it has this superiority over its kindred preparations, it possesses, in an eminent degree, all the properties common to the class.

As an emetic, the tartarized antimony is distinguished by the certainty, extent, and permanency of its operation. The impression which it makes on the stomach, is more forcible, and continues longer than that from most other substances, and hence it produces a more thorough evacuation, and occasions, in a greater extent, all the effects of active vomiting.

When, therefore, we wish the stomach to be completely evacuated, and a lasting effect to be left, the emetic tartar should be selected for the purpose. Either exhibited in a large dose, or in

small ones repeated, it will both puke and purge copiously, in some instances. Besides these two leading and primary effects of the medicine, it, moreover, not unfrequently proves diuretic and expectorant, and almost invariably excites perspiration.

Wishing to puke effectually, the dose of our medicine is from two to five grains, and to promote its operation, some tepid drink should be freely drank. But, in ordinary cases, it is customary to dissolve five or six grains of it in the same number of table spoonfuls of warm water, and direct one every ten or fifteen minutes, till the end is attained.

Not the least commonly used of these preparations, is the *vinum antimonii tartarizati*, of the dispensatories, or the emetic tartar, dissolved in wine. As formerly prepared, the antimonial wine was very objectionable, from the uncertainty of its strength. Employing the glass of antimony, which is soluble in the tartaric acid, the power of the medicine very much depended on the degree of acidity of the menstruum. After all, I do not know whether the simple solution in water is not a more certain, and a better preparation. But the antimonial wine is, perhaps, too strongly fixed, at least in popular confidence, readily to be excluded. It ought to be recollected, that, when prepared according to the *Edinburgh Pharmacopœia*, one ounce of it contains two grains of emetic tartar, and is a dose for

an adult, while that of the London College is of double the strength.

To the cases of children, the antimonial wine is habitually appropriated, and is sometimes prescribed at a very early period of life. I have given it to an infant at birth, to relieve difficult respiration, in consequence of an accumulation of phlegm. The dose, under such circumstances, should not exceed one or two drops. It is, however, more common to resort to this medicine, in cases of children a little more advanced. At any period within the year, provided they have attained the age of three or four months, the dose, for the purpose of vomiting, is ten or fifteen drops, according to the urgency of the case, to be repeated at short intervals, till the effect is produced. But if the disease be croup, the quantity should be larger, as there is here a very great insensibility, as has before been mentioned, to the operation of medicine. In such an attack, we may not hesitate to give a child six months old, a tea-spoonful every fifteen minutes.

I should now proceed to point out, in detail, the application of the antimonial preparations to the cure of diseases, had I not already anticipated much of what I might otherwise have said, under the general head of emetics, and more particularly, when treating of ipecacuanha. I must, therefore, dismiss the subject, with some desultory and miscellaneous reflections.

Considering the emetic tartar as justly represent-

ing all the antimonial preparations, I shall confine my remarks exclusively to it.*

This medicine has been chiefly celebrated in the cure of febrile affections. It is given in the commencement of almost every description of them, to evacuate the alimentary canal, by its united emetic and purgative properties, and, in the subsequent stages, in minute doses, to moderate arterial action, and to excite and keep up perspiration.

To Cullen, the praise has generally been conceded, of having indicated, more particularly than had previously been done, the great value of antimonials in the management of fevers. Being ushered into notice, under the auspices of his distinguished name, the practice soon attracted attention, and became universally adopted, wherever his influence extended.

Of the precise manner in which our medicine operates, in these cases, or with the principle that should guide its use, we are not sufficiently acquainted. Cullen maintains, that it produces no advantage unless it vomits, or creates considerable nausea. But it is, on the contrary, asserted by Fordyce, than whom there cannot be higher authority, that, by exciting vomiting, much of its power is impaired, and that it is most efficacious, when there is the slightest gastric disorder created.

* It is decidedly the opinion of Cullen and Fordyce, that the emetic tartar, on the whole, is to be preferred to all the antimonial preparations.

To this point, I have directed a very careful attention, and am led, independently of all authority, to concur in the latter opinion. Nausea, by whatever means induced, is not, in itself, a salutary effort, nor does it ever dispose fever to a crisis, or favourable solution. During its continuance, arterial action, muscular power, and animal temperature are undoubtedly lowered, though the moment it ceases, there is uniformly, at least in the febrile affections, a re-action of the system, and a correspondent exacerbation of the disease. Did the sickened state of the stomach operate in the beneficial way contended for, then the utility of the medicine should be proportioned to the effect thus created, and a variety of other nauseants, infinitely more powerful and lasting in their impressions, as the digitalis, the tobacco, and squill, ought to be preferred in these cases. But this is contradicted by the lessons of experience, and the united voice of practitioners is against their use, under such circumstances.

Medicines seem to do good in the cure of fever, by exciting their own specific or peculiar action, and when they disorder the stomach by sickness, they depart from this, and, if they do not act as poisons, always become nugatory, or more or less mischievous. To illustrate this position, by particular examples, would be easy in an inquiry more detailed than I can now indulge, and I am sensible, too, that they cannot be required by any one who has, or will devote his mind to this subject.

Many, indeed, of the febrifuge preparations, are among the most pleasant of our medicines, such particularly as the effervescent draught, and the neutral mixture, the primary effect of which is to remove nausea, or to sustain the tone and tranquillity of the stomach.

But, while I contend, that the antimonials, like mercury, lead, arsenic, bark, &c. operate by virtue of a peculiar power, I wish it to be understood, that I conceive, as in the instance of the articles just enumerated, that their efficacy in the reduction of fever, will always be proportioned to the quantity taken, provided they exercise their genuine mode of action, which, as before stated, is incompatible with any nauseating effect. Curious as these views of the *modus operandi* of our medicine, may be in speculation, they become incomparably more interesting when applied to practice. Be it admitted, that they are correct, and we have, indeed, at once, rescinded all the prejudices and objections against the use of a class of remedies, which confessedly are of the highest utility. Nevertheless, it is not to be inferred, that any part of the preceding remarks are applicable to emetics, in the forming stage of fever, these operating entirely on a different principle, and their efficacy, when thus employed, is too well attested to be shaken or disturbed.*

* Fordyce's Third Dissertation on Fever.

Besides the more purely febrile affections, our medicine has been liberally prescribed in various diseases, and is thought especially to be adapted to inflammatory cases. Bleeding, and other direct evacuations, having been premised to a certain extent, the antimonials are resorted to, with great advantage. Exhibited to keep down arterial action, this they do, by promoting the discharges from the alimentary canal, or the surface of the body, and by a direct impression on the circulatory system. Combined with opium, or nitre, or calomel, in various proportions, their powers are vastly increased, and are rendered susceptible of a much more extensive and diversified application.*

Nor was less confidence reposed in our medicine, at one period, in active hæmorrhages. No doubt, from the highly respectable testimony which we have in its favour, the emetic tartar was here useful. I have sometimes directed it, in conjunction with nitre, in febrile hæmorrhages, and have thought it eminently serviceable. It is well suited to all cases of this description, though more particularly to hæmoptysis, or bleedings of the lungs.

Yet, it must not be supposed, that I mean, by the preceding remarks, to derogate from the value of ipecacuanha, or the lead, in hæmorrhages. My

* Vid. Diaphoretics.

object is not to institute even a comparison between the three remedies. Each one has its own appropriate cases, which a skillful practitioner will always discriminate and select.

Notwithstanding all that has been said of the utility of antimonials, in dysentery, I must think, they are decidedly inferior to the ipecacuanha. It is stated, however, by Sir George Baker, that the result of a very extensive experience with both medicines, in that disease, was entirely on the side of the antimony. To the same point, we have also the authority of Sir John Pringle, though not so strongly expressed.*

The deliberate opinion of such men, on a practical matter, is always entitled to great weight and consideration. But still, I do believe they were deceived, or, at least my own observations and reflections have conducted me to an opposite conclusion. The antimonials, in dysentery, are now administered on the same principle, and under similar circumstances of the disease, as the ipecacuanha. Competent evacuations having preceded, they are then introduced in minute doses, so as to affect the stomach, and, through this medium, to relax the extreme vessels.

Emetic tartar has been a favourite remedy in some of the exanthematous affections, and especially in small-pox. No practice, indeed, was more

* It was the cerated glass of antimony, which Pringle employed

generally adopted, than that of using our medicine in the eruptive fever, where it threatened to become high and inflammatory. In a different mode, it was also prescribed to meet some other indications. When, for instance, the eruption was retarded, and, as a constant effect, the system greatly depressed by extreme gastric uneasiness, the emetic tartar, here given, so as to vomit actively, relieved the stomach, restored its energies, and the eruption appeared.

Declining, at present, to discuss the pathology of this order of diseases, it still may not be uninteresting, to call attention to the fact, of the very close relation which they all have with the stomach. In this view, I have in some degree, been anticipated by Darwin, who has speculated, with his usual ingenuity, on the subject. By opposite states of the stomach, he explains the difference between the distinct and confluent small-pox, supposing that, in the first instance, it is secondarily affected, by sympathy, with the irritation of the original pustule, and, in the second, that it is primarily the seat of the disease.

The same sort of connection would seem to exist with regard to all the cutaneous affections, though not so conspicuously, excepting in the urticaria, or nettle rash, and two or three other cases, where we see it very strikingly illustrated. This eruption is uniformly preceded by a very disordered condition

of the stomach, and can often be traced directly to some wrong impression on that viscus, from crude aliment, or other matters. Even after being completely out, if it recedes, or, to use more familiar language, the eruption is *struck in*, the same train of symptoms return, which are most speedily removed by affording relief to the stomach through the operation of an emetic, and here, the antimonial medicine effectually answers the purpose.

Without, perhaps, having any distinct conception of their *modus operandi*, the antimonial preparations have long been much resorted to, in the cure of chronic diseases of the skin, and other superficial affections, as some of those proceeding from venereal contamination. They are, indeed, one of our principal remedies in all the herpetic cases, and even confirmed lepra, has probably been as successfully managed by them, as by any other plan of treatment. They are given, here, in minute doses, either alone, or in combination with the mercurials, and other articles, having an affinity to the surface of the body. To produce, however, any decisive advantage in these cases, they must be very long and perseveringly continued.*

To create extreme relaxation of the system, by emetic substances, I have already remarked, is one of the expedients of surgery. The most distin-

* Willan on Diseases of the Skin.

guished application of this practice has recently been made in the reduction of dislocated limbs, where the operation proves difficult, from muscular resistance. By Mr. Wilmer, an English surgeon, several instances, derived from his own experience, or that of other practitioners, are adduced in confirmation of its efficacy. He recommends, that a very large dose of tartar emetic be exhibited, so as to produce an entire prostration of muscular power, and, during this state of relaxation, to make the attempt at reduction. He closes his paper on the subject, with some remarks on its superior efficacy over bleeding, purging, baths, fomentation, and the other means hitherto employed with similar views. He maintains, that his plan is not only more certain, but, that no mischievous effects ever result from it.* Nevertheless, I am inclined to believe, that the best remedy, in these cases, is venesection *ad deliquium animi*, as practised, with such prompt and decisive results, by the professor of surgery in this school.

In concluding my enquiries in relation to the antimonial preparations, it remains for me only to state, that, as an enema, the emetic tartar has proved, in my hands, a most powerful and efficacious remedy, and one which promises hereafter to be of very diversified and extensive application. The first case in which I em-

* Eclectic Repertory, vol. iii

ployed it, was to evacuate the stomach, to remove poison which had been swallowed.

After having unavailingly tried a series of the most active emetics, I directed, that half a drachm of the tartarized antimony, dissolved in a little water, should be thrown up the rectum, and, as I anticipated, a violent cholera morbus ensued, evacuating the entire alimentary canal, so much so, indeed, that the food undigested, came by stool. I have, since this time, had frequent occasion to resort to the same means, though not under similar circumstances. It has been chiefly in cases of very obstinately obstructed bowels, that I have repeated my experiments, and generally with results highly satisfactory.

My ordinary prescription for this purpose, are eight or ten grains of the medicine, which I have commonly found sufficient. But, if this does not prove so, the injection, with the same, or an increased quantity, may be repeated in fifteen or twenty minutes. Even in the dose of half a drachm, I have sometimes used it. Where the effect is full and complete, an extraordinary degree of muscular debility takes place, which sometimes lasts for an hour, or more, without, however, producing, so far as I have observed, any permanent mischief.

Bearing in mind the fact, of the uncommon relaxation thus occasioned, I had early resolved to make a new practical application of it to the cure of

tetanic, and other spasmodic affections, which I have since done, and with such complete success, in a case of locked jaw, that I cannot forbear to indulge the hope, that, under this treatment, the disease may hereafter be divested of some portion of its terrors and mortality. I will not, on so narrow an experience as a solitary instance affords, venture to predict, that such will be the result. Enough, however, has been done, to inspire confidence in the remedy, and to induce us, on future occasions, to give it a fair and decisive trial. To the adoption of this course, we are, moreover, encouraged, by the success of a similar mode of treatment, more than one case having been recorded, of tetanus being cured by the tobacco injection. Nevertheless, we are to recollect how diversified is the nature of this disease, and, that no rational expectation can be entertained, of all its forms submitting to any one remedy, or system of practice. Of the case before us, all I could learn of the cause from the patient was, that the nerve of one of his teeth was very much exposed, and that, by touching it, he had often the most acute pain, with convulsive twitches of the muscles of the face. But, whether the attack was brought on by this sort of irritation, or by lying out in the cold, cannot be determined. By the man himself, it was ascribed to the former cause, though I confess, my own opinion has always been otherwise, as it appeared exceedingly analogous to those

cases which are notoriously excited by sleeping in a chilly and moist atmosphere.*

* *Incompatible substances*—Mineral acids, alkalies, and their carbonates—earths, soaps, hydrosulphurets, and the astringent vegetable infusions. The latter, indeed, so completely decomposes the emetic tartar, that they are found to be antidotes to that article, and of them, an infusion of the peruvian bark answers best. *Orfila's Toxicology*.

DISCOURSE VII.

Of the Active Emetics.

THE *nicotiana*, or tobacco, is not commonly placed in the class of emetics. I do not know that I am right in doing so. It is, undoubtedly, a very active emetic, but it has other properties, which give it as strong a claim to a different position in the *materia medica*. Not to mention its minor qualities, it is a narcotic, a diuretic, and a purgative.

The history of this plant is interesting. The production of a little spot, the island of Tobago, it has engaged the attention of the sordid, and enchanted the witty and the wise. Every where its powers are felt, and its fascinations acknowledged. The Arab cultivates it in his burning deserts. The Laplander risks his life to procure it, amidst his snows. No privation is too severe to the seaman or the soldier, while he commands this luxury. Even polished man, with all the comforts of elegant society, cannot dispense with his cigar.

The *nicotiana* is so called, from M. Nicot, by whom it was originally carried into France, and *tabacum*, from the island in which the plant was first discovered. But, previously to its introduction by Nicot, it had been brought to England by Sir Francis Drake, and rendered an article of fashion-

able use, by the influence of Sir Walter Raleigh, notwithstanding the solemn denunciations against it by James I. and the ready submission of many of his court to this proscription. Evidently a narcotic, from this proceeds all its charms. Like opium, it calms the agitations of our corporeal frame, and soothes the anxieties and distresses of the mind.

Considered in a medical view, its property, as an emetic, now first attracts our attention. By Cullen, and some other writers, its use is opposed, on account of the peculiar harshness of its operation. Certainly it exceeds all others in the promptness, violence, and permanency of its impressions. But these very qualities, unpleasant as they are, enhance its value in many cases. The tobacco seems, especially, to be well adapted to the evacuation of some poisons, and may be exhibited, either internally, or applied to the region of the stomach. It is recorded by the late professor Barton, that he resorted to such an application of the moistened leaves to the epigastric region with complete effect, to expel an inordinate quantity of laudanum, in a case, where even the active emetics, in the largest dose, would not operate, from extreme torpor of the stomach. Many instances of poison, and particularly the corrosive poisons, are attended, however, with such an extreme exhaustion of strength, that it would seem perilous to recur to tobacco, lest from its own effects the powers of vitality might be still fur-

ther prostrated, or, perhaps, irrecoverably extinguished.

Exhibited in small doses, it does still appear, that it may be prescribed safely, and even with advantage. By a writer of respectability, we are told, that while at the Cape of Good Hope, he had a number of Hottentots under his care, with intermittent fever. Being deficient in medicines, he resorted to tobacco, and found, as he says, six grains of snuff as effectual in exciting vomiting, as two grains of tartarized antimony. Nevertheless, the tobacco is preferred in minute doses, with a view to its nauseating effects. Thus administered, I have seen it exceedingly serviceable, in subduing the turbulence of some of the more furious shapes of mania, and, where it cannot be given, as often happens, under such circumstances, a poultice of it, externally applied, will answer nearly as well. But the cases in which our medicine is more commonly used, remain to be indicated. These are, incarcerated hernia, and obstinate constipation of the bowels, from whatever cause produced. To meet these purposes, the tobacco is, I suspect, always prescribed as an enema, and certain it is, that, in this way, it proves very effectual, and has the unimpaired confidence of practitioners.*

Deducing his practice from the same principle,

* For the manner of preparation, see *Enemeta*.

Mr. Earle, the distinguished surgeon, has recently treated several of the worst cases of retention of urine, with signal success, by this same remedy, and has added some confirmation to the fact, of which we were already apprised, that it might be beneficially applied in tetanus, and the kindred spasmodic affections.*

As an unguent or lotion, the tobacco is very freely employed, especially in the popular practice of this country, to cleanse foul ulcers, to remove eruptions, as *tinea capitis*, and some of the herpetic affections, and also, in the shape of poultice, as a discutient application to indolent tumors.†

SCILLA MARITIMA.

Of the squill, I have little to say, under the head of emetics. It is a plant, with a large bulbous root, resembling the tulip or onion, having an acrid, bitter taste, and scarcely any odour. Two species of it are used in medicine, the red and white squill, which grow on the shores of the Peninsula of Europe, and along the margin of the Levant, and the Barbary states. As an emetic, the squill is now nearly supplanted by articles of more value. Yet, in the dried state, eight or ten grains of it will produce vomiting, with tolerable certainty. The re-

* Earle's Paper, Med. Chirurgical Transactions, vol. vi.

† Diuretics.

cent squill is not so active, even as twenty to four, owing to its containing a considerable portion of inert juice, which escapes in the process of exsiccation. Different menstrua are employed to extract the virtues of this article, and we have three official preparations of it, the vinegar, the oxymel, and syrup of squills, each of which is nearly of the same strength, and will puke with sufficient activity, in the dose of an ounce. Neither, however, is, at present, resorted to for this purpose, except to relieve the pulmonary system when oppressed by phlegm or mucus, and here it answers, sometimes, exceedingly well.*

PREPARATIONS OF COPPER.

Several of these are powerfully emetic, and, perhaps, the whole might be so managed, as to become so. The only one, however, which is retained in practice, is the blue vitriol, or the sulphate of copper. By Cullen it never was employed as an emetic, but, he seems to think, that it is well calculated to excite nausea, where such an effect is desirable, and that, in this way, it sometimes promotes the urinary discharge.

Much was, at one time, said, of the utility of our medicine in the pulmonary consumption. It has been particularly extolled by an English writer,

* Vid. Diuretics and Expectorants.

who, I believe, originally applied it to the treatment of this disease. The plan which he proposes, is, to excite vomiting in the morning, every day, for weeks together. But there is nothing new in the suggestion. The same course has often been pursued, on the supposition that, by it, the effects of a sea voyage might be attained.

As yet, I am not aware, that the blue vitriol has any property which entitles it to a preference in these cases. The only ground of superiority claimed for it, even by its warmest advocates, is, that it is more local in its operation, and hence does not produce the general relaxation of the other emetics, and especially the antimonial preparations. They allege, that it is really little more than a mere evacuant of the stomach. If this be true, I should presume it not to be well suited to consumption, it having been pretty clearly shewn, that emetics are serviceable in these cases, in proportion to their wide and pervading influence. By virtue of this it is, that they subdue arterial action, promote absorption from the lungs, equalize excitement, and re-establish that just balance in the various parts of the system, on which health depends.

Of late, the blue vitriol has been strenuously recommended, in this country, as an emetic in *cynanche trachealis*. It is affirmed, that it is far more certain in its operation, which, if it be so, renders the medicine a valuable acquisition. But I am disposed to doubt the accuracy of the report on the

subject, and, at all events, I can discern no good reason, on such slender evidence, for adopting the medicine, to the exclusion of others of tried efficacy in this disease. But it is right for me, at the same time, to state, that I have no knowledge of the sulphate of copper as an emetic, never having used it in a solitary case. The dose is from three to five grains.

Combined with an equal portion of the tartarized antimony, our medicine constitutes the once celebrated dry vomit of Mariatt, so called from its being exhibited without drink.*

MERCURIAL PREPARATIONS.

Not a few of the preparations of mercury occasionally produce vomiting, and, perhaps, as effectually as any medicine. This often happens with regard to calomel, which, when it does operate in this way, most thoroughly evacuates the stomach, though, it is not resorted to with this view.

As an emetic, the turpith mineral, or sub-sulphate of mercury, is the only preparation of mercury which has been used to any extent. It was originally employed chiefly to excite salivation,

* *Incompatible substances.* Alkalies and their carbonates—sub-borate of soda—acetate of ammonia—tartrate of potasse—muriate of lime—nitrate of silver—acetate and superacetate of lead—oxymuriate of mercury—the preparations of iron—and all astringent vegetable infusions or tinctures.

though subsequently it has been prescribed in several cases with the intention only of vomiting.

Either alone, or in union with squills, it is alleged by some writers, to do good in the putrid sore throat, and in some of the forms of dropsy. Of its utility here, I am not prepared to speak from any personal experience. Emetics are, unquestionably, sometimes, beneficially prescribed in each of these diseases, and the turpith mineral, as one of them, may be productive of the same effect. The highest reputation, however, which it has attained, is, in the dispersion of the venereal swelled testicle.

As an emetic, it is distinguished principally by the promptness of its operation. Exhibited in the dose of six or eight grains, it hardly enters the stomach before vomiting commences. It would, on this account, seem to be well adapted to the expulsion of poisons, and, indeed, to all cases where a speedy operation is demanded. But there is a two-fold objection to its being generally introduced into practice. It operates with violence, and is very apt to induce a salivation.

The corrosive sublimate, or muriate of mercury, was early employed as an emetic. Being, however, harsh in its operation, it soon came to be considered even as a dangerous remedy. By some practitioners it has lately been revived, and applied, it is said, with great success, in the treatment of croup. Nevertheless, I would enjoin a caution against its use, and especially in children. Before we resort

to so violent a remedy, we ought to have, for our justification, much stronger proof, both of its safety and efficacy, than we have heretofore received.

As relates to cynanche trachealis, I am persuaded we do not want this medicine. Though, it is true, we often have to encounter great resistance to the ordinary emetics in this disease, the susceptibility to their impression may be awakened by venesection, and the warm bath, as formerly mentioned.

PREPARATIONS OF ZINC.

Of these, the white vitriol, or sulphate of zinc, is the only emetic in much esteem. Its operation is exceedingly expeditious and complete, and hence it has been much appropriated to the evacuation of the noxious contents of the stomach. The common dose of it are ten grains. But, where poisons have been swallowed, three or four or five times the quantity may be administered. I have known a drachm to be given at once, and repeated several times.

Cullen, who is not friendly to any of the mineral emetics, except the preparations of antimony, does not very much approve of the white vitriol, even in the particular case before us. To render its effects certain, says he, the dose must be large, and, if this is not soon thrown out, it is apt

to continue a disagreeable nausea, or even vomiting longer than is necessary. But there are other practitioners, of nearly equal reputation, who give us a very opposite account of the medicine. It is especially stated by Mosely, whose experience was ample with it, perhaps more so, than that of any person, that "the white vitriol, besides being in all respects safe and innocent, has advantages over every other nauseating or emetic medicine. These are, that the patient is not harassed with its operation, for that is never violent, as antimonials sometimes are, and is, generally, instantaneous, and as suddenly over, always leaving the stomach strongly invigorated. Neither does it cause spasms in the viscera, nor any nervous affections, mischiefs often produced by the antimonials."*

Consulting the results of my own experience, I should say, that the language of this writer is somewhat extravagant, and seems to be dictated by extreme partiality to the medicine, which the whole tenor of his work very conspicuously evinces. But I would still concede to him, that Cullen, in his description of its effects, has run into the opposite extreme, and that, so far as I am competent to judge, the white vitriol, as an emetic, is safe, and highly efficacious.

To hooping-cough, it is peculiarly well adapted.

* Mosely on Tropical Diseases.

By some enlightened practitioners, it is thought to evince, in this disease, in addition to its property of puking, a very decided antispasmodic tendency. Whether this be so or not, I have, perhaps, not observed with sufficient care to determine. But of its great efficacy, no one can doubt. Many of the quack remedies advertised for the cure of this disease, are combinations of opium and zinc. Nor is it scarcely less useful in cynanche trachealis. Excepting, indeed, the tartarized antimony, I would prefer it to all the rest of the emetics, in vehement attacks of the disease.

Of the zinc, we have a preparation, which has acquired considerable repute, called the vitriolic solution, and is made agreeably to the annexed prescription, which I copy out of Mosely's work on Tropical Diseases.* It is stated, that whatever he added to impart to the mixture a more agreeable taste, always detracted from its efficacy. Nor are the same ingredients so powerful, when administered, even the same quantity, in a pill. As an emetic, this solution is exceedingly active, though it is used chiefly as a nauseant. To procure this effect, the dose for an adult, is a small table spoonful.

Not a little has been said, of the importance of this medicine in some of the bowel affections.

* Take of white vitriol ℥iii., rock alum ℥i., cochineal gr. iii., boiling water lb. i. Mix these together in a marble mortar, until the solution is cold, and the sediment is deposited, then pour it off clear for use.

“ I have,” says Mosely, “ used the solution in dysentery, with the greatest success. I give it at first without alum, in sufficient doses to cause evacuations, and afterwards with the alum, in nauseating doses, and frequently with opiates at night. This I have found far more efficacious than emetic tartar, ipecacuanha, rhubarb, or salts, as evacuants, in whatever manner combined or administered.”

“ In diarrhœa,” continues he, “ of long standing, the cure must necessarily be performed by slow degrees. The treatment here is a dose every morning, to be persevered in, where the case is intractable, for weeks or months, omitting it now and then for a few days.”

My knowledge of this remedy, in the preceding cases, is not intimate or extensive. As a mere matter of experiment, I have occasionally tried it, and, sometimes, not entirely without effect. To the medicine, however there is one objection, which is insuperable, where any delicacy of stomach exists, and which is a very usual attendant on the bowel affections. It is so nauseous, that, even if we force it down our patients, it will not be retained.

The colica pictonum is another case in which the vitriolic solution is stated to be in the highest degree serviceable. After the constipation incident to the complaint is removed, by purgatives, a dose of the medicine is directed to be taken every five or

six hours, while the pain continues, and, to prevent relapses, the same dose is to be repeated for several successive mornings. To cleanse the foul ulcers, in the angina maligna, moderate vomiting by this medicine, we are told, is peculiarly well suited. But I know nothing of its powers myself. It is also alleged to be pre-eminently useful, in the disorders of the chest. Taken in small doses, says Mosely, several times in the day, it proves an excellent expectorant, and is conspicuously beneficial in all pulmonic oppressions in which respiration is performed with difficulty, and where the bronchial vessels require to be relieved, by discharges of accumulated phlegm or mucus. Nor is this all. The worst hæmorrhages of the lungs, continues he, are sometimes suspended, by the steady exhibition of nauseating doses of the medicine. Even in pulmonary consumption, that most hideous of the opprobria medicorum, it has, according to him, very advantageously displayed its powers. To its utility, in any one of these cases, I can myself bear no evidence.

But there are practitioners, and some of high respectability, within the immediate sphere of my acquaintance, who repose more confidence in the powers of the medicine than I have ventured to express. They, perhaps, have had a wider experience with it. Devoted, as I am, to the combinations of ipecacuanha and antimony, in most of the

cases where the vitrolic solution might be applicable, I have hesitated to prescribe it, in preference to medicines, the efficacy of which, I had habitually witnessed.*

* *Incompatible substances*—Alkalies, earths, hydro-sulphurets, and astringent vegetable infusions.

DISCOURSE VIII.

Of Cathartics.

THESE are medicines, which, by quickening the peristaltic motion, increase the evacuations of the intestines, or, as may happen, induce purging. The intimate connection which exists between the whole of the alimentary canal, and the other portions of the complicated structure of the animal machine, gives to them an extensive influence, and renders them among the most important means in the practice of our profession.

It is well known, that cathartics differ very materially, in their degree of activity, some operating mildly, while others are more violent in their effects. The former have been usually distinguished by the title of *laxatives*, and the latter by that of *purgatives*, the harshest of which, are called *drastic purgatives*.

Nor is this the only difference observable in this class of medicines. Most cathartics act through the entire extent of the alimentary canal, while some few seem to be restricted to the rectum, or extremity of the tube only. There is a section which operates speedily, and another, which is exceedingly tardy and sluggish. We have some, which always produce nausea, griping, and tenesmus, and

others, that, however actively they purge, never cause any such uneasiness.

In every age, cathartics have been freely employed. Like emetics, they are found, as remedies, among the rudest and most uncultivated savages. But, though thus early and generally resorted to, it appears to me, that their utility has not always been clearly perceived, or their administration properly directed.

At the period, when confidence was reposed in the tenets of judicial astrology, it was customary to prescribe cathartics, at stated times and seasons, under the impression, that they were more beneficial at particular stages of the moon, or in certain conjunctures of the planets. Even at the present moment, the relict of this preposterous notion exists to a considerable extent, among certain descriptions of people, and proves, in some instances, a very serious impediment to rational practice.*

Nor were the views of the humeral pathologists, in relation to this subject, more correct, or the principles on which these medicines were directed, less absurd. Conceiving, that by a process analogous to fermentation or putrefaction, a peccant matter was separated from the mass of the blood, purges were given, with the intention of expelling it out of the system, and, as each fluid was con-
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* I allude, here, more particularly, to the lower class of Germans in this city, who adhere, with great pertinacity, to their prejudices.

tured to require its own appropriate evacuant, we had introduced into the nomenclature of our science the uncouth terms, cholagogues, phlegmagogues, and menalagogues. The views to which I have alluded, engendering these ridiculous notions, though long declining, may still be traced, in the reasonings and practice of many, who have received their impressions from the earlier writers. Nevertheless, as respects the use of this class of medicines, we have, indisputably, attained to greater accuracy, whatever may be the obscurity in which their precise *modus operandi* may continue to be involved.

The primary and most obvious effect of cathartics, is the evacuation of the bowels. These are liable to various accumulations of a morbid nature, which, remaining, disturb health, and frequently excite or confirm disease. Cathartics, in relieving the bowels, under such circumstances, extend also their operation upwards, and bring down, in many instances, the contents of the stomach. To this may be added, that the strong impression which they impart to the liver and pancreas, excites these glands to invigorated efforts, and the result is a vast increase of their respective secretions. It is in this way, that congestions are removed, biliary calculi dislodged, and jaundice, and other affections from organic obstruction, cured.

Cathartics have, moreover, a wider operation, in which the circulatory system is embraced, and, as a leading effect, arterial action greatly diminished.

This they do, by stimulating the exhalent vessels on the surface of the intestines, and the copious effusions of serum which take place, are so much detracted from the circulating mass. Thus it is, that they subdue the pulse, equalize excitement, and render such important service in the management of the febrile and inflammatory cases. Yet, it is not to be dissembled, that several writers, and some of these of high authority, have denied, that purging exercises any material influence over the blood-vessels. The arguments, however, by which this extraordinary opinion has been attempted to be maintained, are so slender and frivolous, as really to deserve no serious examination. All which is necessary, in order to its confutation, is, to recollect the extent of the intestinal canal, the number of exhalents opening into it, the prodigious quantity of fluid matter discharged by stool, and the depression of the pulse, which uniformly takes place, as a direct consequence of these evacuations.

To this diminution of arterial action we, indeed, owe the activity with which absorption is promoted by these remedies. Confessedly we have none, not even diuretics, which, in many cases, more conspicuously display this property. But, cathartics, on another principle, conduce to the reduction of the pulse. It is a law of the circulation, sufficiently admitted, that, if depletion be made from any one set of vessels, the current of the circulation will be directed to these, and, of course,

the blood diminished in other parts. Cathartics occasion this revulsion, and hence, in part, their utility in some of the diseases of the skin, of the head, of the great viscera dependent on undue determination of blood; and it is, on the same account, that they produce so much mischief, when the intestines are inflamed.

From what has been said, it follows, that, while the action of this class of medicines is undoubtedly stimulant on the stomach and bowels, all their remoter and more permanent consequences are eminently, and most unequivocally sedative, agreeably to my definition of the term, by which I mean, whatever abates the vigour of the circulation, and lessens general excitement. Medicines so pervading in their effects, must be calculated to meet a variety of indications. But, before I proceed to enumerate the cases to which they are applicable, I shall lay down, more precisely, the rules for their administration.

1. As in the case of emetics, give the medicine on an empty stomach, and either in the morning, or at bed time. By doing this, we prevent its being rejected, and secure a much more easy and effectual operation.

2. Let it be recollected, that there are cathartics of very different properties and modes of operation, and carefully adapt the medicine to the circumstances of the case.

3. Nor should it be forgotten, that the drastic cathartics operate, not only more leniently, but also more completely, when combined with some one of the milder purgatives.

4. To promote the action of this class of remedies, as well as to obviate griping, warm beverages are to be freely taken after the first discharge, such as chicken water, or gruel, or molasses and water.

5. It is sometimes necessary to give purges daily. Many diseases, as we shall hereafter see, require this practice. By doing so, we imitate the effects of a spontaneous diarrhœa, which we know occasionally removes the most obstinate and intractable acute, as well as chronic affections.

6. To check hypercatharsis, most of the means prescribed to arrest the inordinate action of emetics may be employed. The best, however, is laudanum, largely given per anum.

OF THE PRACTICAL APPLICATION OF CATHARTICS.

Cathartics, in every form of fever, are prescribed, and the mode in which they do good, in these cases, may be collected from my preceding observations. Exhibited in the commencement of almost any febrile affection, they will often arrest its progress, and, during the subsequent or more advanced periods, they are sometimes daily repeated, and, so far from weakening, add to the strength of the patient.

In detailing the several species of fever, where purgatives are deemed more especially useful, I may remark, that, in the treatment of intermittents, it has, of late, become very much the custom to prefer them to emetics, as evacuants of the alimentary canal, preparatory to the reception of the bark, and other tonics. But this preference is owing, more to motives of convenience, than to any conviction of their superiority. Emetics are still considered, in many of the worse cases of the disease, as indispensable; such, at least, is the result of my own experience, which, I find, is corroborated by the most respectable practitioners living in those districts of country, where these troublesome complaints prevail to the greatest extent, and with most violence. To be effectual, in some of the obstinate cases, it is necessary to repeat them several times, and I think this may be done most advantageously, a little before the anticipated accession of the paroxism.

To remittent fevers, cathartics seem to be still better adapted. They are employed here, not only to evacuate bile; which, from the highly excited state of the liver, is perpetually accumulating, but, also, to keep down the force of the blood vessels, and to obviate the exacerbations of the disease. Continued fevers, of a bilious inflammatory type, are so closely allied to the remittent, in their causes, nature, and treatment, that what I have said of the one, will equally apply to the other form of the disease.

Meaning, on a future occasion, to notice, more in detail, the course pursued in our yellow fever, I shall now be content to state, that, acting at first, under the impression of its being a highly aggravated bilious fever, it was universally the practice to purge, even with the drastic articles, most steadily and copiously. Taught, however, at length, a more correct pathology of this epidemic, by dissections, and by a closer examination of its phenomena, this treatment was, in a great measure, superseded, and the remedies now substituted were such, as are suited to a very malignant species of gastritis, of the character of which, was this disease.

As regards our more recent winter epidemic,* it is not possible, within a limited space, to indicate the precise practice, so diversified were its aspects in the several sections of the country, and consequently, so different the means employed. As it occurred in this city, and still further north, purging was rarely found expedient, though, in the southern states, it partook strongly of the bilious diathesis, and demanded the freest evacuations from the bowels. Notwithstanding, a contrary opinion has been very strongly expressed by some physicians, whose authority I am bound to respect, I am persuaded of the rectitude of this practice, having witnessed the necessity of it among those members of the medical

* *Peripneumonia typhodes*.

class, natives of the south, that had the disease, under my care, and who retained, in a very great degree, the bilious tendencies of their climate.

Of late, it is much the vogue to treat typhus fever by our class of remedies. To the work of Hamilton on Purgatives, to whom the credit of having introduced the practice is due, I must refer for all the illustrations, by cases of it, and for many other interesting details. This fever, by which I understand what is more familiarly called jail, ship, camp, or hospital fever, had long been managed by emetics, in the first onset, and afterwards by the mild antimonials, and other nauseating medicines, with a design of maintaining diaphoresis. Not being, however, much encouraged by the success of this practice, he resolved on the innovation just stated, and the experience of his new plan, has entirely persuaded him of its superior efficacy. He ascribes the usefulness of purgatives "to their acting through the whole extent of the intestines, and to their moving and carrying off feculent matter, rendered offensive and irritating by constipation, and by the changed nature of the fluids, secreted into the intestinal canal." To accomplish this purpose, he appears to give a purgative nearly every day, and that of a very active sort, such as calomel, or jalap, or both united. Yet, while he is thus attached to copious purging, he by no means excludes such other remedies, as the fluctuating state of the disease may seem to exact.

Between the intestinal canal, and the surface of the body, as has more than once been noticed, there is so close a sympathy, that an impression made upon the one, is speedily felt on the other part of the system. Much, therefore, is to be expected from cathartics in the exanthematous fevers. Next, indeed, to cool air, purging was found, in small-pox, most to allay the heat, reduce fever, and lessen the crop of the eruption. Except venesection, I know of nothing so beneficial in measles, as the milder laxatives. They occasion a depletion by the bowels, which commonly mitigates or prevents the pneumonic symptoms, and, the distressing diarrhœa incident to the sequel of the complaint, is certainly not so apt to take place. Nor is this remedy of less service, in some other of these affections. In erysipelas, especially where the inflammation runs high, every one is acquainted with the utility of purgatives. The evacuations, however, ought to be copious, and, in the progress of the attack, to be frequently induced. But, notwithstanding which, the loss of blood will sometimes be necessary, and, on account of the very heated sensation on the surface, a topical application must be used, and of the various means which I have tried, for this purpose, none has afforded such prompt and perfect relief, as a watery solution of opium.

Cathartics have recently been much employed in scarlatina. "Many years ago," says a distinguished practitioner, "when the prejudices against the

use of purgatives were more decided, and more prevalent than they are at this time, I ventured to prescribe them. My doing so was, indeed, the necessary consequence of the advantage I had experienced from the same remedies in typhus. I had learnt, that the symptoms of debility which take place in this species of fever, so far from being increased, were obviously relieved by the evacuation of the bowels. I was, therefore, under little apprehension from them in scarlatina. I have never witnessed sinking and fainting, as mentioned by some writers, and so much dreaded by them, neither have I observed a revulsion from the surface of the body, and consequent premature fading, or, in common language, striking in of the efflorescence, from the exhibition of purgatives."* The practice, as here described, with the occasional introduction of the lancet, is undoubtedly that kind, which has proved to be the best adapted to the disease, as it occurs in this section of the United States. I have pursued it invariably, and have always had abundant reason to be satisfied with its efficacy. To me, it has appeared to be calculated, not only to cure the disease in a more summary manner than any other mode of treatment, but, likewise to afford the best means of preventing the dropsical swellings, and other derangements of health, or of removing them, when, by negligence, or unskilfulness, they have been permitted to take place.

* Hamilton on Purgatives.

But, it is not to the acute affections of the surface, that these medicines are restricted exclusively. They have, on the contrary, even from the remotest times, been much employed in all the chronic eruptions of every description. In some of these cases, and especially such as are of a pustular nature, they undoubtedly sometimes prove efficacious, and much more frequently in children, than persons further advanced in life.

Many of the eruptions, however, including, perhaps, all the herpetic varieties, are purely local, and being situated on the very verge of vitality, are little, if at all, influenced by general or constitutional impressions, and therefore, are more advantageously managed by direct applications to the part on which they are seated.

Diversified, as are these affections, it would be impossible for me, within the narrow limits to which I am unavoidably confined, to deliver, with any sort of precision, a system of practice, applicable to all the cases, and must, therefore, be content to refer to the works of established reputation on these subjects, and particularly to Willan's and Bateman's treatises on cutaneous diseases.

DISCOURSE IX.

The subject continued.

IT is hardly necessary for me to mention, that cathartics constitute a very important part in the treatment of the morbid states of the alimentary canal itself.

I shall first speak of constipation of the bowels. This is a relative term. While a large majority of our species, require for the preservation of health, a daily evacuation, there are some who are said to have passed days, weeks, months, and even years, without an opening; and experience, from the interruption of this natural function, no very serious inconvenience. Many cases to this purport are recorded, and a large collection of them may be met with in Haller's great work on physiology. But still this habit of body is generally found to be wholly incompatible with the enjoyment of health, and is marked by head-ache, vertigo, nausea, fœtid breath, offensive excretions; and numberless other symptoms of a highly unpleasant, and even disgusting nature. Numerous causes produce this condition of the bowels, which, however, may be, perhaps, arranged under the two heads of inirritability of the intestines, and deficiency of bile, or vitiation of its properties. Each of these states may be removed

by purging and, in the first, after having quickened the peristaltic motion by stimulant cathartics, we should next resort to the milder laxatives. Mercurial purges answer best, in the second, by the peculiar impulse which they impart to the liver, correcting its secretions, and when they fail, a slight salivation may be induced which is almost always successful.

Besides the condition of the bowels which I have noticed, they often have their discharges interrupted, by spasmodic constrictions, denominated colic. Without at present engaging in the inquiry relative to the varieties of this disease, I shall state, that in all such cases, cathartics are of indispensable utility. It is customary here, to direct the more active articles, and in liberal doses, but it is important to know that, in some instances, the most lenient of the purgatives are to be preferred. There is a certain relation between the power of a medicine and the tone of the system, which would seem sometimes to be graduated with extreme nicety and precision. What operates at one time, we find to prove utterly inert at another, under apparently similar circumstances, and in the same person. This is owing to the want of harmony in the case.

In a directly opposite state of the bowels, purgatives are not less demanded. Every one is acquainted with their utility in dysentery, in the several forms of cholera, and in some instances, even of diarrhœa.

As relates to dysentery, it seems to be a maxim settled, and very much by common consent, that they are to be continued till the evacuations assume a natural appearance. As a general rule, this is unquestionably correct, though in this form of intestinal disease, proceeding, as it sometimes does, from mere irritation, the purging may be intermitted sooner, and anodynes recurred to with very great advantage. The case of diarrhœa, which calls for purgatives is, where it arises from acrid bile, or some other cause irritating the bowels, and provoking them to discharges of preternatural frequency.

Of the utility of cathartics, no one doubts, in all the cases of inflammatory fever with local determinations. I have already explained the *modus operandi* of purging under such circumstances. It is on the two fold principle of direct revulsion, and by the depletion which takes place in consequence of effusion from the exhalents.

No disease is more purely of this nature than acute rheumatism,* and of course cathartics, among other evacuants, are useful. Notwithstanding, however, the most judicious treatment, the complaint will sometimes continue without any consi-

* Such undoubtedly is the established doctrine on the subject. But it is nevertheless not true, that rheumatism is a *purely inflammatory* disease. There is in the case great increase of action, requiring the freest use of all the depleting means for its cure, but it is an action of a *peculiar* nature, having none, at least, of the characteristics of genuine or phlegmonic inflammation, either in its progress or terminations

derable abatement for weeks, and even for months. In these cases, the phlogistic diathesis of the arteries is kept up, while the strength in general is so much reduced, as utterly to forbid the further loss of blood. Even if venesection be admissible from the degree of vigour remaining, it only has the effect, as I have often remarked, of augmenting the excitability of the vessels, and thereby aggravating the mischief. Under circumstances like these, active purging will occasionally prove of great advantage. It seems, more than any other remedy, to quiet the mobility of the arteries, and to diffuse the excitement over the system, which in this case, is chiefly concentrated in the blood vessels.

Consulting the history of diseases, we shall often discover certain relations between them, which will lead us to the most curious and interesting practical conclusions. Every one who has much clinical experience must have observed, how intimate is the connection which subsists between rheumatism and the acute affections of the intestinal canal, as cholera, diarrhœa, and dysentery. The affinity indeed is so striking, especially with dysentery, that this disease has been maintained, on no slender evidence, to be a rheumatic state of the bowels. Be this however as it may, we learn that they frequently alternate, or that the affection of the limbs is thrown on the intestines, or reversely, and by this translation, the pre-existing complaint is for the time, completely relieved.

Nothing, indeed, is more common in the practice of physic, than to see rheumatism suspended, or even cured, by diarrhœa, spontaneously induced. Taught by this fact, the course which nature points out, I have often imitated it, in the treatment of the more obstinate and protracted cases of the disease before us, and have had much reason to be satisfied with the results.

By a very natural transition, I pass on to the consideration of gout. The alliance is very close between this and the preceding disease, so close, indeed, from the many common points of resemblance, that they cannot always be discriminated. Consulting the early writers, it will be found, that active purging in podagra, or regular gout, is a very ancient practice, and must, indeed, have been even violent, as the articles then in use, were of a severely drastic nature. It, in fact, prevailed; with no interruption, till it was prohibited by Sydenham on purely theoretical prejudices, it being he observes, “an inviolable law of nature, that the matter of the disease should be thrown out by the extremities, emetics and cathartics will have no other effect, than that of bringing back the offending matter to the bowels.”

Enslaved by his high authority, we have, ever since, with some very limited exceptions, nearly abandoned the use of purgatives, and been content, most commonly, to let the attack spontaneously ex-

haust itself. To envelope the limb with flannel, and to urge a patient endurance of the pain, constitute, indeed, proverbially, the amount of what is at present done in a regular paroxism of gout. It appears to me, that the example of Sydenham has been, in this case, exceedingly mischievous, having led to the desertion of a practice which, if judiciously applied, is, in my opinion, not only safe, but peculiarly calculated to overcome this most distressing disease. Interesting as would be the enquiry, it is not allowed me to indulge in any minute, or lengthened disquisition concerning the nature and causes of gout. My impression, very concisely stated, is, that this disease, if not originating in, has a most intimate connection with, certain states of the alimentary canal. I am inclined to this view of the subject, among other reasons, from having so frequently observed gout to commence with those symptoms, which denote a depraved condition of the stomach and bowels. The precursory indications of an approaching attack of the disease, are, almost invariably, flatulence, sour eructations, indigestion, depraved appetite, nausea, strong sensations of internal heat, and obstinate constipation, or a laxity of the bowels. It may seem, at first, somewhat extraordinary, that I should place in the alimentary canal a disease, the apparently regular, and certainly ostensible seat of which, is in the extremities. Were it permitted me to extend such speculations, I could easily shew, that there is no-

thing irrational in the hypothesis, or, which is not illustrated and confirmed, by many analogous cases. But, whether the opinion I have ventured to advance on this subject be correct or not, it may be confidently stated, that the practice it dictates, is perfectly sound, and fully warranted by experience.

I have now, for several years, habitually employed purgatives in the paroxisms of gout, and with unequivocal advantage. Not content with simply opening the bowels, I completely evacuate, by active purging, the entire alimentary canal. This being accomplished, all the distressing sensations of the stomach which I have mentioned, are removed, the pain and inflammation of the limb gradually subside, and the paroxysm, thus broken, speedily passes away. To effect these purposes, however, it is often necessary to recur to the remedy repeatedly.

Next I am to consider the utility of cathartics, in some of the affections of the head. Whatever may be the difference of opinion among practitioners on other subjects, there seems to be the most perfect unanimity, as to the indispensable necessity of purging in these complaints.

By the generality of writers, it is maintained, that the proximate cause of apoplexy consists in a compression of the brain, produced either by congestion, or an extravasation of blood. That such appearances often exist, dissections have

abundantly shewn. But, whether they be the effects of disease, primarily seated' in the brain, or produced secondarily, by sympathy with the stomach, is not so manifest. Of late, it has been held, by the pathologists of the continent of Europe, more especially, that apoplexy is really a gastric affection, and, in support of this hypothesis, they have argued with great plausibility. Whether we concur, or not, in this view of the subject, to the full extent, it must be conceded, that certain impressions on the stomach are capable, and do very often excite the apoplectic state. Evidence to this point may be collected in the history of those cases of the disease, which are brought on by the narcotic poisons, by worms, by a load of indigested matter, and by various depraved states of this viscus, the consequence of debauchery, in eating or drinking. Curious as this case may be, as a matter of speculation, I do not know that it leads to any practical difference, so far, at least, as respects the employment of cathartics. Next to venesection, this class of remedies constitutes, in the hands of most practitioners, the leading ingredient, not only in the management of this, but of all the acute disorders of the head. Yet, to be effectual, the purging should be exceedingly copious, and induced by the drastic medicines. Evacuations of this sort, will be still more required where we have reason to suspect the cause of the attack to be accumulations in

the stomach, though, in these cases, emetics are to be preferred.

As resembling, in several points, the preceding disease, I shall next make a few remarks on palsy. The pathology of the two complaints is precisely the same, in my estimation. They are, indeed, reciprocally, cause and effect, or convertible diseases, and palsy, perhaps, as frequently runs into apoplexy, as apoplexy into palsy. Nor does the treatment essentially differ. But I wish, particularly, to call attention to the use of cathartics in the latter. It has so happened, that I have seen much of paralysis, the disease abounding in our public institutions. My mode of treating it, originally was, by bleeding, blistering, and stimulating embrocations, accompanied by the pretty free exhibition of tonics. Being, however, not satisfied with the result of my practice, I have long since abandoned it, and rely, now, almost exclusively, on actively evacuating the bowels, by the drastic purgatives. Of the propriety of the change, I can entertain no doubt, my success having exceeded my most sanguine expectations. To do justice, however, to the practice, it should be steadily persisted in, and aided by such auxiliary remedies, as the cases may, from time to time demand. Of the auxiliary means to which I allude, there is none so important as a repetition of blisters, not to the affected limb, for this is comparatively useless, but to the back of the neck, or,

what answers still better, caustic issues on the same part, or behind the ears, or on the top of the head. These drains must be kept freely discharging, by irritating dressings.

In a preceding discourse, I intimated my sentiments of the nature of the disease called hydrocephalus internus. Whatever may be our speculative differences on this point, no one disputes the great efficacy of purging, in the commencement of the complaint. In many instances, at least, when this state of the brain was suspected, I have seen the disordered stomach, the dilated pupil, the comatose tendency, and other alarming symptoms, removed by very copious evacuations from the bowels. After these remarks, I need hardly add, that purgatives are entitled to our highest confidence in phrenitis, a case which partakes much of the nature of hydrocephalus, in its early stage.

To mania, in all its varieties and stages, this class of remedies has long been thought well adapted. The ancients managed the disease, and especially melancholia, chiefly by purging. It is by no means rare, in the history of the maladies of the mind, to meet with cases, distinguished by a peculiar insensibility to impressions of every description, so much so, that even the most copious venesection produces no effect. The vessels under these circumstances, acquire a certain habit of perverted action, which is not at all influenced by the

loss of blood. Nor is this state peculiar to the mental affections. We see it, on the contrary, in various other cases of chronic disease.

Continued nausea, or occasionally active vomiting for several days successively, will sometimes arouse the system out of its indolence or torpor, and when this fails, I have often derived the most signal advantage from large doses of drastic cathartics, so as violently to gripe and otherwise harass and torment the bowels. This practice is also very well calculated to subdue the ferocity of the more furious shapes of the disease.

Cathartics are among the more prominent means employed in most of the visceral inflammations. To comment on each of this series of cases individually, would be a tedious repetition of the same observations. Yet there is one of these affections, in which it may be proper to insist more particularly on the utility of purging. From the enormous size of the liver, the vast flow of blood to it, and its peculiar structure, inflammation here is exceedingly rapid in its career, and often requires to arrest its progress, a concurrence of all the depleting powers. In aid of venesection, which in its fullest extent is indispensable, the administration of brisk cathartics, constitute a very prominent part of the plan of treatment. They reduce the force of the circulation in the way which I have so often mentioned, and obviate those congestions, which so much aggravate inflammation.

To the general rule which I have stated of the applicability of copious purging to the order of phlegmasia, there are some exceptions, which will be hereafter pointed out.

DISCOURSE X.

The subject continued.

THE diseases arranged under the class of neuroses, or in other words, the nervous and spasmodic affections, will next engage our attention, and I commence with chorea sancti viti. Determining from my own experience, which of course cannot be very extensive, in a disease of comparatively rare occurrence, I should say, that there is scarcely any chronic affection of long standing, that yields more rapidly to any plan of treatment than chorea does to purgatives. It would seem, indeed, that the practice has acquired much confidence and very widely prevails. The medical journals of Europe contain many cases of cures of this disease effected by purgatives. Chorea, like most other diseases, consists of two stages, and in the first, while the intestines still retain their sensibility, gentle purgatives, repeated as occasion may require, will readily effect a cure, or rather prevent the full formation of the disease. But in the second a more careful attention is necessary. Cathartics, the most active, must be here given in successive doses, in such manner, that the latter doses may support the effect of the former. The impression once made on the bowels is never to be permitted

wholly to subside. Without this is done, relapses are apt to take place, and we loose all which we had previously gained. Nor are we to trust exclusively to this one remedy. The disease, if not inflammatory, is often connected with a very plethoric state of the vessels, and imperiously calls for the use of the lancet. To bleed freely in it, was the practice of Sydenham, the propriety of which, has been amply corroborated as well by my own, as the experience of other practitioners. Topical evacuations, by leeches or cups from the head, are also in some cases demanded, and to confirm the cure, a course of tonic remedies becomes expedient.

In epilepsy, a disease very nearly allied to the preceding, I have used purgatives with the happiest effects. This practice, if not original with me, has never, perhaps, been pushed to the same extent by any one else. To its adoption I was led, not less by my theoretical views of the disease, than by the total failure of the ordinary plan of treating it by tonics. Nor could I help being encouraged to pursue it by the great advantage which I had derived, or seen derived, from the same practice in several of the kindred affections. Epilepsy, in common with all the cases to which I have alluded, is connected with a certain mobility of the system, which would seem to proceed, if not always, at least very generally, from irritation in the alimentary canal. Thus, among a variety of other causes, it has been brought on by worms, by the

sordes of dysentery, by the pain of dentition, by the narcotic poisons taken into the stomach, by intoxication, by repletion from excess in eating, by acidity or flatulence, by eruptions repelled from the surface, and finally by obstinate *constipation*. When, therefore, we have reason to suspect the disease to be seated in the alimentary canal, we must look to emetics or purgatives as the chief means of cure. The circumstances under which emetics are proper, I have already indicated. Determining on the use of purging, it will not do merely to evacuate the bowels. Cathartics, on the contrary, must be repeated day after day, without interruption, unless imperiously forbid by peculiar circumstances. By continuing this course for several months successively, I have cured several cases of the disease completely, and afforded considerable relief in some others. My success, indeed has been such, that I am almost encouraged to hope, could we get our patients to persevere in the use of this remedy, the disease would become incomparably more manageable than it has ever yet been.

Let it not however be understood, that I would limit the treatment of epilepsy simply to purgatives. Even those cases which are most strictly primary affections of the alimentary canal, uniformly require the aid of various remedies. To remove the symptoms of plethora, which are very usual incidents of the disease, venesection, as well as topical bleeding by leeches, or cups to the head, are

often necessary. Nor is it less important, under such circumstances, to impose the strictest regulations with regard to diet. The lowest and least stimulating regimen, as vegetables only, or bread and water, I have sometimes found absolutely indispensable in conducting the cure of the disease. But though, perhaps, a large majority of the cases of epilepsy, arise from derangement of the alimentary canal, there are some which may be traced to organic affections of the brain. These present much greater difficulties in the management, and most generally will prove to be altogether incurable.

Of the use of purgatives in hysteria, I have not much to say. As its name imports, this disease has long been supposed to originate in the uterus. But I cannot help believing, notwithstanding what may be urged so plausibly to the contrary, that this generally received opinion with respect to its pathology, is as unfounded as the practice deduced from it, has proved to be unsuccessful. My conviction is, that this, like all the rest of what are denominated nervous affections, is intimately associated with certain morbid conditions of the stomach and bowels. The symptoms which denote this connection in the present case, are violent pains in different parts of the alimentary canal, hiccup, sour eructations, flatulence, indigestion, constipation, vomiting or purging, which invariably precede a paroxysm. In the view which I

have taken of this disease, I am fully supported by the results of my own practice, and the concurrent experience of some very distinguished authorities, and by Hamilton, especially. To illustrate, as well as to vindicate this mode of treating the complaint, he has collected a number of cases, which will be found in the appendix to his work.

That purging alone will invariably cure hysteria, I am by no means prepared to assert. Though I have often rendered essential service by the remedy, it has not been my custom to trust to it exclusively. Many of the cases of the disease are attended with a very full state of the vessels, and require bleeding, while others, seem, from the commencement, to call for the pretty free exhibition of stimulants and tonics. My general practice is, to evacuate the stomach and bowels by the steady exhibition of cathartics so long as there appears to be a necessity for it. But before this is effected, I have sometimes had occasion to repeat them every third day for a very considerable period. Most commonly, however, they may be omitted in two or three weeks. The alimentary canal being thus relieved, tone and vigour may be restored to the system by combinations of the foetid gums with the chalybeate preparations, or by the bark and other tonics, as I shall hereafter detail more particularly.

Tetanus is the last disease of this class, on which I shall at present make any remarks. It is very properly divided into two kinds, the

idiopathic, and symptomatic. The first is produced by general causes, and the second is the effect of wounds, or other injuries. Tetanus of the former species, at least, I cannot help considering as merely an acute and highly aggravated form of the several preceding affections. They have each, that is, hysteria, chorea, and especially epilepsy repeatedly taken on tetanic symptoms. Like these complaints, tetanus originates in a variety of causes, but by whatsoever it may be produced, the attack is uniformly ushered in, and accompanied by the strongest indications of the alimentary canal being chiefly affected. Even where it is occasioned by a wound, much anxiety and distress are immediately felt at the præcordia, and sickness of stomach, and spasms of the bowels soon follow. But the irritation of a local injury, is only one of the causes of the disease. Tetanus is also excited by the vicissitudes of heat and cold, by exposure to marsh miasmata, by the exhaustion from over exertion, by worms in the intestines, by the acrid matter of dysentery, by the bites of venomous reptiles, by powerful stimuli acting on the stomach, as the stramonium, camphor, hemlock, ardent spirits in excess, and lastly by *constipation* of the bowels. If this history of the disease be correct, the propriety of actively evacuating the alimentary canal is exceedingly obvious. We have already seen the efficacy of purgatives in the milder

forms, of hysteria, chorea, and epilepsy, and there can be no objection to the extension of the practice to the aggravated cases of the same disease.

In one variety of tetanus, the utility of purging is indisputably established. My allusion is to trismus nascentium, or that spasmodic affection which occurs in the first days of infancy, in consequence of a disordered state of the stomach and bowels, from the retention of the meconium, a congenital accumulation of acrid and offensive matter. Nor are we entirely destitute of direct evidence of the efficacy of the purgative plan, in the disease when existing under other circumstances. Cases are recorded by Hamilton in his work, and by many other writers in the late periodical journals, of a character the most conclusive and irresistible. The earlier authorities, and particularly the writers on the diseases of tropical climates, might also be cited in favour of copious purging in tetanus, when originating, as they state it frequently does, in loaded and oppressed bowels, or, from acrid or indigestible matter received into the stomach.

I once met with a case of confirmed tetanus in a boy, produced by a collection of cherry stones in the rectum, and another from ascarides. They both gave way almost immediately on the cause being removed, and surely nothing can prove more strikingly, the intimate connection between such spasmodic affections, and primary irritation in the alimentary canal, than these facts.

With this I conclude what I have here to say on the application of purgatives to the cure of the nervous affections. My observations, though copious, have been general, and, perhaps, on this account wanting in perspicuity, and that nice discrimination, which is required in practice. This, however, was unavoidable. It would have been inconsistent with my province, to have expatiated more on practical points, or to have descended further into the details of clinical instructions. My chief object has been, to point out some new views relative to these troublesome affections, which I honestly believe to be true in speculation, and which I know, as well from my own experience, as that of others entitled to my confidence, will be found just and useful in practice.

Considering the close analogy between the opinions I have delivered, and those contained in the work on purgatives, to which I have so frequently referred, it may seem, that candour required, that I should make a distinct acknowledgement, of my having borrowed them from that source. But such is not the fact. Nearly twenty years ago, and very early in the progress of my professional studies, I read a paper before the Medical Society of this city, on the connection of the alimentary canal with the rest of the body, which embraces this very pathology, and, as an obvious deduction, precisely the same modes of practice. But, though I must assert my own claims to originality in this respect, I am

not the less sensible of the obligations due to the distinguished character, who has propagated, and established, by the weight of his high authority, one of the greatest improvements which practical medicine, in my estimation, has of late received. To those who are not conversant with the reputation of the author of the work on purgatives, it may not be uninteresting to be told, from my own personal knowledge, that, as a practitioner, he unites to the quickest perceptions, and the soundest judgment, the accumulated experience of nearly half a century, acquired from private practice, and by an attendance in one of the most extensive, and, perhaps, the best clinical school, in Europe.

Evacuations by the bowels have long been deemed of the greatest service in dropsy. Not a few practitioners, indeed, rely almost exclusively on purgatives in these cases. By Sydenham they are recommended to be employed every day, unless prohibited by the debilitated state of the patient, and this is, undoubtedly, sound practice, though it ought not to be resorted to indiscriminately. Dropsy is connected with very opposite states of the system, and requires to be treated by different remedies. Every practitioner has seen it associated with fever, and no inconsiderable degree of even inflammatory action. Exactly as the case assumes this aspect, does it indicate the use of the *lancet*, the saline purgatives, and especially the soluble, or cremor tartar. But in the selection of cathartics, it

is much more common to prefer the drastic species, or what were formerly called hydragogues. Medicines of this character, are indisputably mischievous, under the circumstances mentioned, and are only advisable, where the alimentary canal is torpid, the habit generally phlegmatic, without fever, or local visceral disease. That dropsy is sometimes a febrile affection, attended by great fulness and activity of the arteries, is no new opinion, though it has recently been claimed as such. The doctrine is distinctly laid down by Stahl, in his chapter on hæmorrhagy, and subsequently, by Dr. Grapengiesser, in his dissertation "*De Hydropse Plethorico.*"* Yet dropsy is, perhaps, not less frequently a disease of very feeble action, the consequence of a debilitated and exhausted system, or of a highly disordered state of some one of the principal organs, as the spleen, liver, &c. Cases of this description, do not admit, at all, of the use of purgatives, but exact for their cure, a combination of the tonics, with the more stimulating diuretics, and, in some instances, especially when associated with visceral disease, a temperate exhibition of mercury. Of the several forms of dropsy, however, anasarca and ascites are the only ones, in which purgatives, under any circumstances, are employed. To hydrothorax, they seem wholly inapplicable, as they do not, in these cases, promote

* Vide Duncan's Commentaries.

absorption, and are apt to increase debility, while the dyspnœa, and other distressing symptoms, are aggravated.

Marasmus is a complaint more particularly confined to children, and generally makes its appearance soon after weaning. It had long been customary, owing to the symptoms of debility, to treat it by steel, and other tonics. The result of the practice shewed its impropriety. I have seen several cases of this disease, and, under the impression of its superior efficacy, have invariably pursued the purgative plan. My success has been such, as to inspire me with much confidence in it. Different opinions have been entertained relative to the cause of this disease. It has been imputed to worms, and to obstruction in the mesenteric glands. It may occasionally arise from both of these causes, though I am disposed to think, that it has most commonly its origin in a torpid, or weakened state of the alimentary canal, with which the whole of the chylopoietic viscera sympathize. To this conclusion I am led, not less by the external phenomena, or signs of the disease, than by the appearance after death. Dissection shews the intestines filled with black *foetid sordes*, or impacted mucus, the liver much enlarged, and the mesenteric glands considerably tumefied. The intestines being thus loaded by these foul collections, the passage of the nutriment is not only impeded, but the absorption of the chyle prevented, and the langour, from in-

anition, ensues, attended by all those derangements which I have described. But, whatever theory may be adopted in this case, the practice is necessarily the same. If the disease has its origin in worms, purgatives, which are among our best anthelmintics, will be useful. If it is produced by a morbid state of the mesenteric glands, this class of remedies which are the most powerful deobstruents, must be equally required. If it is owing to a torpid state of the intestines, they will be most effectually excited, by active purgatives.

Two stages are very distinctly marked, in the marasmus of children—the incipient, and confirmed. The bowels, in the first, are not altogether inactive, and mild purgatives, repeated at proper intervals, are to be employed. But it is very different in the second stage, there being here little sensibility, and the accumulation of feculent matter is prodigious. We are, therefore, required to purge actively. Calomel, given in as large a dose, and as frequently repeated, as circumstances will admit, has always answered best in my hands. Extraordinary as it may appear, this copious purging, instead of adding to the debility of the child, will be found to relieve its distresses, by daily increasing its strength.*

In chlorosis, or that general derangement of health, to which girls are exposed about the season of puberty, this class of remedies has sometimes

* Hamilton on Purgatives.

signalized its powers. As it is not permitted me to enter minutely into the history of diseases, I shall overlook the multiplied theories that have been advanced, to explain the singular group of affections incident to this period of life, or of the divers modes of treatment, which, at different times, have been adopted. It is remarked by the writer, by whom this practice is particularly recommended, that the "slightest attention to the general history of the disease, evinces, that costiveness precedes, and accompanies the other symptoms. It is this, which induces the feculent odour of the breath, disordered stomach, depraved appetite, and impaired digestion, which preclude a sufficient supply of nourishment, at a period of life when it is most wanted." Considerations of this sort, it appears, led him to the use of purgatives, and he declares, that they proved at once safe, and quickly salutary.*

Of the advantages of this practice, I cannot speak with much confidence from personal knowledge. Though of late years, a good deal consulted in the diseases of women, I have not had many very well marked cases of chlorosis. The vigour of the female constitution, in this city, seems to prevent its occurrence, in any very great degree. Certain it is, however, that, in states of disordered health closely allied to it, and particularly in some of the forms of

* Hamilton on Purgatives.

amenorrhœa, I have seen the most decisively good effects, to follow active purging.

As not very remote from this subject, it may be right for me to notice here, that a species of hæmatemesis, occurring in females in early life, is stated to be very successfully managed, by the liberal use of purgatives. It had generally been held, that this particular hæmorrhagy, which is proved to have no connection with any organic affection of the stomach, is a discharge vicarious to the menses. I confess, that I still incline to this opinion, because, among other reasons which might be alleged in its support, I have always remarked, in the cases which have come under my notice, that amenorrhœa existed. But, it is now contended,* that it proceeds from, or at least, is mainly dependent on, a constipated state of the bowels, the fæces which are brought off, being always copious, and of an unnatural colour, consistence, and smell. What is the success of this, compared with the former mode of treating these cases, I will not take on myself to pronounce. Of this, however, I am well assured, that purgatives have hitherto been too sparingly resorted to in the cachectic complaints generally. Determining from my own experience, I should say, that they are, sometimes of the greatest advantage in scrofula, and its associate affections. I have seen the white swelling most essentially relieved,

* Hamilton on Purgatives.

by a long continued course of purging, and its beneficial effects are now fully attested, in the morbus coxarius, more especially, I think, when it proceeds from a strumous contamination. Nor is it hardly less useful, in the dissipation of glandular enlargements, or of those tumors approaching to scirrhus, which frequently occur in the mammæ of women. But, to be productive of any decisive utility, in any of the preceding instances, it is required, that this plan of treatment be persisted in with steadiness, and for a great length of time, and, that there be brought to its aid various other measures, such as topical bleeding, blisters, low diet, and a state of rest. I speak now, more particularly, in reference to the disease of the hip joint, which I have cured, by purging on every other day, for several months successively. It was Dr. Physic, I have reason to believe, who originated this practice, or rather, urged it further than before had been done. Much has it already accomplished, though infinitely more may be anticipated from it, when it comes to be applied, as I am sure it might, to all the diversified shapes of chronic inflammation.

DISCOURSE XI.

On particular Cathartics.

EXTENSIVELY as I have entered into the consideration of the use of cathartics, many cases still remain to be indicated in which they are habitually prescribed, and with the greatest advantage. But these are comparatively of minor consequence, and the principles which I have already delivered on the subject, will serve sufficiently as a guide, to the further application of these remedies. Even at the present time, cathartics are too much neglected in the management of disease, and most commonly, from an impression of their extremely exhausting effects. As regards acute diseases, there is no doubt that active purging reduces very rapidly arterial action, and with it, the general strength of the system. But such is precisely what is here desirable, and in the chronic affections, where any increase of debility is to be avoided, these medicines would really seem, as a general rule, to operate very differently.

Nevertheless, as in all other cases, a recurrence to this class of remedies is to be controuled by a sound discretion, and, under certain circumstances, they are either utterly precluded, or to be very sparingly and cautiously used. Exceptions to their general use

at least to their active use, may be found in all low and sinking conditions of the system—in most of the complaints of the chest, and especially where expectoration is solicited—in the first stage of inflammation of the stomach and bowels—in hæmorrhoidal predisposition—and, during menstruation, pregnancy, and immediately after delivery.

It is a very curious fact, but one fully confirmed by experience, that urged to any extent, evacuations from the bowels, are found in the complaints of the lungs always mischievous, and in some cases so injurious as to be wholly inadmissible. Even in pleurisy, we cannot purge with the same freedom as in other cases of acute inflammation. But in the chronic pneumonic affections, and especially in pulmonary consumption, the system immediately sinks under the operation of purgatives, and hence we are so careful to restrain diarrhœa in this disease.

I proceed now to the history of particular cathartics, and these I shall arrange according to their activity, or under the two heads of laxatives and purgatives.

OF LAXATIVES.

Of this description, the first substance which presents itself is the *oleum ricini*, or *castor oil*. This is derived from the seeds of a plant called *palma christi*, or the *recinis communis*, a native of

the West Indies, but which thrives and grows luxuriantly in many parts of the United States. These seeds are variegated with black and white streaks, resembling both in shape and colour the insect *ricinis*, or tick, whence the name is given to the plant. They were early used, so early, indeed, as the time of Hippocrates, but the skin of them being extremely acrid, one or two of them will often operate violently, as a drastic purgative or emetic. It is perhaps about half a century since it was discovered in the West Indies that the oil expressed from the seeds, constitutes an excellent laxative, mild in its effect, and wholly destitute of the disagreeable or baneful properties of the seeds themselves. Castor oil operates with great certainty, and produces its effects without griping or stimulating the intestines, and is therefore admirably adapted to all cases where merely opening the bowels is required. In the habitual costiveness of sedentary and studious persons, it answers exceedingly well. Most other purgatives, and especially the resinous purgatives, rather aggravate the state for which they are given to relieve. They confirm the habit of costiveness, and lose their efficacy by repetition. But the oil, it is said, after a little use, will act even in a less dose, and always leaves a laxative tendency.

Castor oil was originally employed in *colica pictonum* by the physicians of the West Indies, where the disease abounds. Its efficacy in these

cases is too well attested to be doubted. I have indeed often witnessed its passing through the bowels in other forms of colic when powerful cathartics have been resisted. Yet we cannot generally trust it in obstinate constipation, or when copious evacuations are demanded. It will insinuate itself through the intestinal canal, bringing with it a small portion of the more fluid contents, but leaving behind the collection of indurated fæces. Were I to resort to it, under such circumstances, it should be some hours after a dose of calomel and jalap, or any other active cathartic. When thus administered, it very generally promotes purging, and mitigates the harshness of the drastic medicine.

Castor oil is much employed in dysentery and other inflammatory states of the bowels. It has been supposed to be peculiarly adapted to these cases, as it passes very generally through the whole extent of the alimentary canal without being sensibly changed, and hence while it purges away offensive matters, it sheaths the delicate surface of the intestines. This however, I suspect to be a mere notion; the quantity of oil commonly employed being too small to answer any such purpose. In a more advanced period of the disease, when there is tormena, or tenesmus, I have sometimes used with great advantage the annexed preparation.* Of this, which is known by the name of

* R Ol. ricin. ℥i. Pulv. Gum. Arab. ℥ii. Sacch. alb. ℥i.
Tinct. theb. gtt. xl. Aqua. menth. ℥ii. m.

oleaginous mixture, a table spoonful is to be taken every hour, or two, as circumstances may demand. This mixture remains on the stomach much better than the pure oil, and sometimes very speedily relieves the symptoms which I have mentioned. To cholera infantum, the oil is supposed by most practitioners to be not less suited. It is given in the beginning of an attack to evacuate the bowels, and subsequently, in smaller doses, pretty much with the same view that it is directed in dysentery. As, however, this complaint is usually attended by nausea and acidity, I have found the oil still more advantageously administered in the following shape :* the dose of which, and the manner of repeating it, must be determined by the age of the child, and the circumstances of the case.

As exciting little or no irritation, the oil has also been much commended in hæmorrhoids, in puerperal women, and after surgical operations. As a laxative, it is useful in all the diseases of children, no medicine indeed, being so appropriate. The dose of the oil for an adult, when we wish it, full effect, is an ounce, and for the infant, not less than a tea spoon full even at birth.

As the oil is an exceedingly unpleasant medicine to most persons, several means have been sug-

† R Ol. ricin $\overline{3}$ i. Sacch. alb. $\overline{3}$ i. Album: ovi q. v. ft. mis.: adde gradatim. Aq. calcis. $\overline{3}$ v. Tinct. theb. gtt. xx. m

gested to obviate this inconvenience. It is sometimes taken in ardent spirit. This vehicle, however, is obviously improper in very many cases. The French always take it in coffee. It is said, when mixed with a strong infusion of senna, in the proportion of three parts to one, to be far less nauseous, and sits more comfortably on the stomach. Made into an emulsion with the yolk of an egg, and cinnamon or mint water, it is certainly not very disagreeable. I think on the whole, there is no better way of giving it, than by pouring it on a little sugar and water, which prevents it adhering to the sides of the glass, and both before and after swallowing it, to rinse the mouth with rum or brandy.

When the oil cannot be retained, a very excellent substitute may be had in an emulsion made of the seeds of the *palma christi*, previously stripped of the skin. We should, indeed, often employ this preparation, could we always procure the recent seeds. These soon become rancid, and in this state are not only unpleasant to the taste, but very harsh in their effects.

OLEUM OLIVARUM.

IN many of its leading properties the olive oil is similar to the medicine of which I have been treat-

ing. It is very mild, very quick, and a very certain laxative. I know not indeed of any property which it does not possess in common with the castor oil, except perhaps its activity. It may be administered in all cases where the former is useful, and I am persuaded with nearly an equal advantage. Being less offensive to most people, it would seem, in this respect, to have a superiority over the castor oil. There are two cases where it is decidedly preferable, as when certain poisons have been swallowed, and in the colicky affections of children, accompanied with obstructed and inflamed bowels.

The objection which I have heard made against the olive oil in inflammatory cases, that it is digested, and therefore increases the quantity of circulating fluids, is wholly unfounded. Given in such a dose as to purge, it always passes through the bowels like castor oil, and not more changed. The fact is, that in all acute affections of the alimentary canal, the process of digestion becomes nearly suspended, and whatever is received into the stomach, even the nutritious mucilages, are so little acted upon, that they are expressly directed to "blunt acrimony, and sheathe the delicate surface of the intestines."

As a substitute for each of the preceding articles, melted butter may, on some occasions, be employed. It has often been prescribed, when acrid matters have been taken into the stomach, and not with-

out utility. But the case, to which I think it more especially adapted, I shall hereafter notice, under the head of enemeta. As a fact of some practical importance, it is worthy of recollection, that the animal oils are much less irritating than the vegetable.

SULPHUR.

This is one of the laxatives, with which the mineral kingdom supplies us, and was deemed, till recently, an elementary substance.

The sulphur of commerce, is the product of volcanoes, in Italy, or is dug out of the mines of Germany, Sweden, and Hungary. Now and then, it has been found perfectly pure, though the more ordinary state in which it is met with, is that of adulteration with various extraneous matters. By the process of sublimation, it is purified, forming the flores sulphuris, and when melted, and run into cylindrical moulds, is called roll brimstone, which is usually not so pure. The former of these preparations, is the one most commonly prescribed; and, in the dose of one or two drachms, is among the most lenient and useful of our laxatives. But, though such is the general character of the medicine, we sometimes see its operation exceedingly harsh, violent, and irritating, so much so, indeed, as to produce bloody and painful evacua-

tions. Effects of this sort, however, most probably, are owing to the impurity of the medicine; the sulphur in the process of sublimation, sometimes acquiring a degree of acidity, from a partial combination with oxygen, and hence the washed sulphur,* is to be preferred for internal use. The action of sulphur, is principally on the great intestines, and, on account of its mildness, is thought to allay the irritation of these parts, and is much employed especially in hæmorrhoids. It is also adapted to the cases of habitual costiveness. After opening the bowels, it leaves a laxative tendency, without inducing that sort of weakness, which disposes to flatulence and eructations. We sometimes, in these cases, combine the sulphur with an equal part of cremor tartar, in the form of an electuary.

In gout, as well as rheumatism, the sulphur has acquired considerable repute. When the former of these diseases attacks the alimentary canal, with flatulence, and spasmodic uneasiness, it is undoubtedly very often highly serviceable. I have not tried it, in any other forms of arthritides, though it has been much used to evacuate the bowels, in regular podagra. But in rheumatism, I have prescribed it much, and certainly with advantage. To the chronic states of the disease, attended with pain, it is the best suited. I have generally directed it in such

* Sulph. sublim. lotum.

doses as to keep the bowels, at least, in a laxative condition, though the sulphur also operates by exciting perspiration. It is by this twofold property, that it probably does good in these cases, and in a variety of other diseases.

By the German writers, a good deal has been said of the utility of our medicine, as a purge, in dysentery. As, however, their practice was never imitated to any extent, and is now nearly repudiated, I presume it had no very solid claims to attention. Yet, in dysentery of that species, which partakes of the character of rheumatism, or catarrh, sulphur might, perhaps be applied with advantage, though this is mere conjecture, having no experience whatever with the medicine, under such circumstances.*

MAGNESIA.

This is a simple earth, found, for the most part, in a state of great impurity, from which it is cleared by certain chemical processes. Magnesia was introduced into the materia medica, at the beginning of the last century, by Count De Palma, at Rome, and continued, for a long time, a very lucrative secret. It scarcely, indeed, lost the character of a quack medicine, till it was prepared, about forty or fifty years ago, by a Mr. Glass, an apothecary, at Oxford.

* Diaphoretics.

Magnesia usually exists as a carbonate. When administered in this state, if it meets with an acid in the stomach, a decomposition sometimes takes place, and a considerable quantity of carbonic acid is disengaged, which causes an uneasy distension, and the other symptoms of flatulence. It should, therefore, be always calcined, or, in other words, deprived of its fixed air, before it is used. This is more especially necessary, as regards children, with whom it is much employed, even within the month, and who sometimes suffer much, from the neglect of this precaution.

Magnesia is a mild laxative. Combined with other substances, it becomes more active, and especially with rhubarb. Equal portions of it and the lac sulphuris, form one of the most certain,* and, at the same time, lenient of our purgatives, and is admirably suited to remove a torpid state of the bowels. Magnesia, however, is mostly prescribed alone, to correct acidity, and afterwards, to act as a purgative. It is, with this view, much given in gout, in all the depraved states of the stomach, in the griping colics of infants, and other analogous affections. The annexed formula will be found useful in these latter cases.†

* Sulphur precipitatum.

† R Magnes. calc. gr. xxx., pulv. rhei gr. vi., sacch. alb. ʒi, oilanis gtt. iii., tinct. theb. gtt. iv. aq. font. ʒiss. M. The dose for the infant, is a tea-spoonful.

CARBO VEGETABILIS.*

VEL

CARBO LIGNI.

This article, on account of its antiseptic properties, has long been used for a variety of purposes in domestic economy. Excepting, however, its external application as a poultice to ulcers, to correct their odour, or to arrest the progress of mortification, no great use had been made of it in the practice of medicine. It is true, that, during the reign of the pneumatic pathology, it was proposed, and perhaps employed, as a means to rob the system of the excess of oxygen, which was presumed to cause certain diseases.

Reasoning on its general properties, I was induced, several years ago, to administer it internally, in a case of ulcerated fauces, and tongue, accompanied with a very fœtid breath, which I suspected to arise from a morbid state of the stomach. After a few trials, I had the satisfaction to find, that the fœtor was corrected, the ulcers improved, and, by perseverance in its use, a cure was ultimately effected. I have since been much in the habit of employing it in all chronic ulcers of the throat, where I supposed them to be owing to the same cause, and not without advantage. Encouraged, also, by what I had observed of its effects, in removing the offen-

* Parr's Medical Dictionary.

siveness of the breath. in some of the preceding cases, I have since, and with not less success, prescribed it with the same view, where this existed, independently of ulceration. My observations have taught me, that the odour, under such circumstances, does not proceed from diseased lungs, as is commonly supposed, but is a foul exhalation, from a depraved condition of the stomach.

The powers of charcoal, in destroying the odours of substances, is very peculiar, and, I do not think has hitherto been well explained. Even medicines placed near it, are deprived, it is said, of this property, and more particularly valerian, galbanum, balsam of Peru, and musk.

Charcoal, in the dose of a table spoonful twice a day, which is my mode of exhibiting it, opens the bowels gently, and seems to be well calculated to obviate costiveness. It may, therefore, be placed among the milder purgatives, though it has claims to be considered in another light. Certain I am, that it is a substance of much more extensive utility, and will hereafter become an important accession to the materia medica. It has, undoubtedly, very considerable tonic powers, and especially on the alimentary canal. I have employed it in dyspepsia, though not enough to convince myself, that it was of any great utility. Nevertheless, it appears to me, that it promises to be serviceable in acidities of the stomach, in pyrosis, in some of the stages of dysentery, where the stools are acrid and

highly offensive. To the latter case, it would seem to be well adapted, since it entirely divests, as I have remarked myself, the excrementitious discharges of their bad smell, and probably of their acridness. Exhibited in small doses, charcoal is, most unquestionably, astringent, or, in other words, operates on the bowels, in restraining inordinate evacuations, precisely in the same manner as the cretaceous preparations do, and might, on this account, be useful in diarrhœa, and other atonic fluxes. May not, too, something be expected from it, in those low states of disease, such as were formerly called putrid? Experience has already demonstrated its efficacy in intermittent fever, given in the dose of a drachm. during the apyrexia, observing, in every respect, exactly the same rules, as in the employment of the Peruvian bark. Distinct from what has been said of its powers in this disease abroad,* I have, in my possession, some very

* In one of the late numbers of the *Edinburgh Medical and Surgical Journal*, there is an account of the successful use of charcoal in the ague and fever, by Dr. Calcagno, of Sicily. On the authority of this physician, the remedy has been pretty extensively tried in the same disease, by Dr. Calvert, physician of the British forces at Palermo, and with a full confirmation of its powers; and who has also collected, from his medical correspondents, some additional proofs, to the same effect. He further states, that it has been beneficially employed in intermittent fever, blended with dysentery, and, it moreover appears, according to him, that it removes the bitter and disagreeable tastes in the mouth, allays sickness whenever there is a tendency to vomit, and sometimes stops the vomiting when it has occurred, promotes appetite, and assists digestion; thus verifying, in a great degree, my predictions of the powers of the article.

strong evidence of the same purport. I have said, that charcoal might be beneficial in a certain state of dysentery. In the form of the disease, complicated with intermittent fever, as described by Moreton and Cleghorn, it appears to me, that it may likewise prove a valuable addition to our means of managing it, and such a one as is much required, having found the bark, notwithstanding what has been stated in its favour, by these writers, is here totally inadmissible, always, if it be retained at all, aggravating the bowel affections, without making any impression on the fever.

Not long ago it was confidently stated by M. Bertrand, physician in France, that by experiments he had ascertained, that charcoal is a complete antidote both to arsenic and corrosive sublimate. As we were not in possession of the means of counteracting, especially the former of these poisons, this communication attracted great attention, so much so, indeed, as to be circulated through the most popular vehicles of intelligence even of this country. But, on the repetition of these experiments by other persons,* it was found, that charcoal has no such property, affording another instance of the fallacy of medical testimony, and of the impositions of this sort, which are constantly practised upon the public.†

* Vide Orfila on Poisons.

† After the above article was written, I had put into my hands, the edition of the Edinburgh Dispensatory for 1816, where I find it stated,

NEUTRAL SALTS.

These are a very valuable class of evacuants, and though there is a considerable number of them, they are so uniform in their properties, and so familiar in their use, that little occasion exists, to enter into any details on the subject. They are all given nearly in the same quantity, which is about an ounce dissolved in water, and are considered as occupying, in point of force, an intermediate space between the laxatives and purgatives. Each is also distinguished by the peculiarity of operating in a smaller dose on repetition. As they relieve the bowels pretty freely without exciting much action either locally or generally, they are usually resorted to when a phlogistic diathesis prevails. If, however, a thorough evacuation of the contents of the alimentary canal, or a sudden reduction of the excitement of the system, be demanded, as mostly happens at the commencement of inflammatory bilious fevers, these saline laxatives must give way to the mercurial combinations. But after such an effect has been produced, they are admirably calculated to keep down action, to preserve the bowels in a soluble state, and may be so combined with antimonials as

that two German writers, Hahneman and Juch, had mentioned that charcoal removes the factor of dysenteric stools, and that it is useful "in itch, worms, florid phthisis, and other atrophies." Externally applied in form of a paste, I have also lately heard that it will cure tetter and other herpetic eruptions.

to act on the surface, and to fulfil a variety of other indications.*

Of this assortment of medicines, the glauber salts, or sulphate of soda, in some respects, are to be preferred. They have all the leading properties of the rest, and are distinguished by rather more activity and certainty of operation.

The next of the saline laxatives is the sulphate of magnesia. It was once known by the name of bitter purging salt, and still more by that of Epsom salt, from the name of the place at which it was originally manufactured. Excepting that it is more apt to be retained, I do not know that it has any superiority. But on this account it has been strongly recommended in colica pictorum, in dysentery, in cholera morbus, in enterites, and other complaints attended with great gastric irritability. That it will lie on the stomach, when most other articles are rejected, I have sometimes seen, and think particularly in cholera infantum, a disease, in which it may be often recurred to with advantage.

The tartrate of potash and soda, or Rochelle salts, are only recommended by the circumstance of their being less nauseous. They are now most generally given, dissolved in Seltzer water, and are by no means, unpleasant to the taste, or offensive to the stomach, in this shape.

Of the vitriolated tarter, or sulphate of potash, I have as little to say. It is very seldom used,

* Diaphoretics.

and seems to be less estimated as a laxative, than any of the neutral salts. When resorted to at all, it is in the dose of a drachm or two, united to jalap or rhubarb, or some other vegetable purgative. But even in this way we see little of it in practice.

The phosphate of soda is comparatively a new medicine, not having been introduced into the materia medica above twenty or thirty years. Like the preceding salts it is a mild laxative, and certainly is not so disagreeable. Yet I doubt whether it is so active, or so well calculated to meet several important indications. It seems to be less cooling in its effects, and commonly produces an intolerable degree of thirst, and uncomfortable sensations about the stomach. It may be exhibited in solution in water, or in soup, or gruel made without salt. Being very similar to the muriate of soda in taste, it will answer very well as a substitute in this way.

Of the soluble tartar and cremor tartar, the tartrate and supertartrate of potash, I shall defer saying any thing till I come to the history of diuretics.

DISCOURSE XII.

Of Purgatives.

THE article which first arrests our attention is calomel, or sub muriate of mercury, and of all the purgatives this is the most important, and the one which is susceptible of the widest application in the practice of physic. There is scarcely indeed any case in which purging is required, that it may not be so regulated either alone, or in combination, as to meet the several indications. It has the singular property of imparting force to many of the mild, and moderating the severity of the drastic medicines. Whenever we wish a strong and permanent impression to be made on the alimentary canal itself, and through it on the neighbouring viscera, or the system generally, calomel, by universal consent is consecrated to these purposes. But, besides the superior efficacy of calomel as a purgative, it is recommended by the facility with which it is administered. Destitute of taste or odour and minute in its dose, it will be often taken when other medicines are refused, and may be so disguised, as to be imposed on the most suspicious or unmanageable of our patients.

Calomel, on every account, seems to be peculiarly adapted to the cases of children. Whether we

wish to relieve actual disease, or merely to evacuate the contents of the bowels, it always operates leniently and efficaciously. But by many it is supposed to be a very violent purgative, and hence there is a sort of popular prejudice against its use in the complaints of children, an error, which leads to so much mischief, that we ought to unite to remove it. From a very extensive experience with the medicine, I am entirely convinced that in those cases, its action is incomparably milder, than in more advanced life. To infants of only a few weeks old, I have known it to be given, and have witnessed no very harsh effects from it. But this is not my own practice. Never from choice do I resort to the calomel, till the child is old enough to distinguish tastes, and to resist the administration of what is nauseous. Believing the castor oil, or rhubarb, preferable, I seldom prescribe it within the first year.

The dose of calomel for an adult, when taken alone, is from ten to twenty grains. We commit a mistake in giving too small a quantity of this medicine. Employed largely, its action is infinitely less harsh and irritating to the stomach and bowels, and is not so apt to be rejected by vomiting, its purgative operation being more prompt and complete. I have known a drachm to be taken at a time without inconvenience, or even with much increase of effect.

RHEUM PALMATUM.

This is the botanical title of the plant which affords rhubarb. The root, the only part used, is brought from China and also from Siberia, by the way of Russia. Being imported from the Levant, the latter has obtained the name of Turkey rhubarb, and is of a much superior quality. It is in small pieces, of a bright yellow colour, has a smell somewhat aromatic, and a bitter, approaching to a styptic taste. The Chinese comes in larger and more cylindrical shapes, is paler in its appearance, harder and more ligneous in its texture, and has less of the sensible qualities. The rhubarb has within a short period been grown in different districts of Europe, and in our own country, and where care is taken in the raising and preparation of it, answers very well.

Combining the purgative property with that of astringency, rhubarb differs from almost every other article of the same class in this respect, that while it purges it imparts, instead of lessening the tone of the alimentary canal. Equal portions of calomel and of rhubarb, ten or fifteen grains of each, form a purgative admirably suited to all bilious affections. Except, indeed, that it lingers longer in its operation, I am not sensible that it is inferior to jalap, or any other medicine. It is hence not a little prescribed in our autumnal fevers, and is

as useful in the early stages of dysentery with accumulations of bile. Evacuations having been premised, it may, in conjunction with ipecacuanha and opium be advantageously directed in the same disease, to relieve tormena, tenesmus, and other distressing symptoms *

Many of the cases of diarrhœa are treated nearly in the same way. The rhubarb is at first given as an evacuant, and subsequently in minute doses, with a view to its astringent and tonic effect, sometimes alone, though oftener, perhaps with the same articles, and pretty much in the shape, just mentioned. Nor is the rhubarb scarcely less resorted to, in the chronic complaints of the stomach, no medicine having been found perhaps to answer better, in the several forms of dyspepsia, and in those affectional symptomatic of it, as hypochondriasis, &c.

Connected with some of the cases of atonic gout, there is a very depraved state of the alimentary canal, producing flatulence, sour eructations, and spasmodic uneasiness more or less severe, to relieve which, I know nothing more effectual than Warner's cordial, a preparation, into which the rhubarb enters largely.†

* R Pulv Rhei. gr. xx. Ipecac. gr. x. Gum. opii. gr. iii. Ol. cinnam. gtt. v. Gum Arab. q. s. ft. mass. Div. in pill. x. One of which, every two or three hours.

† Take of Rhubarb bruised 1 oz. Senna $\frac{1}{2}$ oz. Saffron 1 \mathfrak{z} . Fennel seed and coriander seed, each 2 \mathfrak{z} . Powdered liquorice 4 \mathfrak{z} . Raisins pounded 1 \mathfrak{lb} . Brandy 3 pints. To be digested for a week. The dose is half a wine glass full.

Considerable confidence was at one period, reposed in the powers of rhubarb in all hepatic congestions and obstructions, and particularly in jaundice. As a purgative it unquestionably does good in many of these cases, though its efficacy may be increased by adding calomel to it. The liver having been strongly impressed by this active purgative, or by the action of an emetic, a very favourite prescription of mine, consists of rhubarb, aloes, and castile soap, in equal parts, made into pills, of which enough may be given to keep the bowels in a soluble state. To the cases of children, few medicines are so well suited as rhubarb. It is taken with tolerable facility, and operates so gently, that it may be prescribed at a very early period of life, and under almost every circumstance of their diseases.

As the rhubarb very readily yields its virtues to water, to proof spirit, and to wine, these menstrua are employed to form a variety of preparations of this substance, all of which that are officinal, will be found in the different dispensatories. As some of these are neat and efficacious, they are worthy of attention. But while on this subject, I will mention a domestic preparation of rhubarb, in very general use, of which the formula cannot be procured in books. It is called the *spiced rhubarb*, and there are two modes of making it, one with water, and

another with spirit.* The dose of rhubarb when given alone, is from twenty to forty grains.†

ALOE PERFOLIATA.

This is the inspissated juice of a plant which grows in the south of Europe, in Asia, Africa, and America. Three varieties of the medicine are kept in the shops, the socotorine, the hepatic, or Barbadoes, and the caballine or horse aloe. The first is preferred, and the last is only admitted into veterinary practice. As yet, the species of plants producing these different sorts of the article, have not been clearly determined. It seems, however, probable, that the socotorine is afforded by the aloe perfoliata, and the Barbadoes and caballine, either by the aloe spicata, or aloe vulgaris. Aloes is a warm stimulating purgative which passes through

* ℞ Rad. rhei ℥ i. Cort. cinnam. ℥ ii. Nux Mosch ℥ i. Caryophyll. ℥ fs. Sacch. alb. ℥ vj. Sp. cinnam. ℥ ij. To put into a deep dish and burnt out.

℞ Rad. rhei. Cort. cinnam. Macis āā ℥ ii. Aq. font. ℞ j To be simmered away till half evaporated, and then add sugar and brandy enough to preserve it from becoming sour. Exhibited in divided doses, this medicine is sometimes useful in the second stage of most of the bowel affections, especially of children.

† Incompatible substances. The salt of iron, strikes a *black* with its infusion. By the alkalies, alkaline earth, or neutral salts, its colour is changed to red, and it is rendered more quick, and mild as a purgative, though its astringency is destroyed. It may not be altogether out of place, here also to mention, that by *toasting* or *torrefying* rhubarb, we add to its astringency though in the same proportion, we diminish its force on the bowels.

the stomach and small intestines without making much impression, though operating with some force on the lower part of the alimentary canal, and especially the rectum. It is on this account, when employed for any length of time, very apt to produce hemorrhoids, or if they exist, to increase the pain and irritation of these tumours. This medicine ought therefore to be studiously avoided by persons subject to these, or any other affections of the lower intestines. It is supposed also strongly to excite the uterus, and hence is forbidden in pregnancy. But in many cases the aloes is both a safe and efficacious purgative. It was the opinion of the older physicians that it has some of the qualities of bile, perhaps from its intense bitterness, and that when there is a deficiency of that fluid, it might be prescribed as a substitute. I know not how far this hypothesis is well founded. But certain it is, that aloes has in a very great degree, the power of stimulating the intestines, and hence its utility in habitual costiveness, a very small dose answering the purpose. Cullen says, that he has known innumerable instances of persons who very constantly obtained this effect from one or two grains, and it is equally remarkable, that though the dose be encreased to ten times the quantity, the effect is nearly the same. If this observation be correct, we are taught, that though perhaps no medicine is more fit to open the bowels, the aloes is wholly unsuited to the purposes of copious purging.

But it is not altogether true that the effect is not increased by a large dose. Ten grains of the medicine will operate with some activity. Cullen also, seems to think, that nothing is gained by mixing aloes with other articles, and is particularly opposed to its union with the drastic purgatives. But his objections are evidently more the result of speculation than actual experience, and are therefore entitled to little weight, being wholly unsupported too by the observations of any one else. This indeed, is so little the case, that aloes with perhaps the single exception of costiveness, is employed alone for no purpose; it having been the practice ever since its introduction into use, to torture it by every species of combination, and it now enters into an uncommonly large number of preparations. Whether in every instance, its efficacy has been improved, I am not prepared to say, though of this there can be no question, that when calomel, or rhubarb, or scammony, gamboge, &c. is added to it, its activity as a purgative, is considerably promoted.

CASSIA SENNA.

This is a plant which grows in Turkey, Syria, and Persia. It is commonly called Senna Alexandriana, because it was once exclusively imported from the city of Alexandria, in Egypt. We have some inferior kinds of this medicine, which come

from Italy, the Barbary states, and the West Indies. They are, probably, the same plant, degenerated by cultivation in a less genial soil and climate. The senna is one of those medicines, which we originally derived from the Arabians, and is an active and useful purgative, though very apt to gripe when given by itself. As this effect, however, depends on the resin which the leaves contain, it may, in part, be obviated, by moderately infusing them in a large quantity of water, and be further counteracted by adding some of the carminative seeds, as coriander or fennel; and still more effectually, by an aromatic, as cardamom, or ginger. By infusing it with the common black tea, its taste, I am told, is much improved.

At present, the senna is never prescribed in substance, the dose being both bulky and disagreeable. It, however, yields its virtues very readily to water, though we should, in preparing the infusion, carefully avoid the water boiling, as the volatile parts of the leaves, in which reside the more active properties, are evaporated.

The senna is hardly ever used alone. The ordinary mode of directing it, is with manna, salts, or cremor tartar, and sometimes, with all three ingredients. As a purgative, it is distinguished by the certainty and activity of its operation, and is also recommended by its lying well on the stomach. It is hence a good deal resorted to in obstructed

bowels, and whenever we require a searching and active evacuant.

CASSIA MARILANDICA.

As its name imports, this is a plant of our own country. It is very abundant in different parts of the United States, and possesses nearly the same virtues as the foreign senna, being of the same genus. As a substitute for it, I am informed, that it is much used by country practitioners. The dose and mode of preparation, are the same. From what I can learn of this plant, it is well worthy of further examination.

PODOPHYLLUM PELTATUM.

Every section of the United States furnishes this plant, and it is designated by several provincial names, as the mandrake, the ipecacuanha, the May apple, &c. To the New World, this species of podophyllum, I believe, is restricted, and is one of those plants, the several parts of which, are possessed of different properties, the fruit being esculent, the leaves poisonous, and the root highly medicinal.

My experience with this article, is not very extensive, though I have seen enough of its effects to persuade me, that it is not without claims to our notice. As a purgative, it resembles the jalap, and I

think, in a similar dose, is not less active or effectual. Like that medicine, also, its powers are heightened by an union with calomel, and, in bilious cases especially, ought not to be prescribed without it. As a remedy in intermittent fever, it is said to be useful, independently of its purgative property, of which, however, I know nothing myself.

The proper season for collecting the root, is late in the fall, when the foliage begins to drop. If gathered in the spring, it is comparatively inert. This is a fact deserving of recollection.

JUGLANS CINEREA,*

VEL

JUGLANS CATHARTICA.†

Of all our indigenous cathartics, at least such as are known to me, I suspect the butter nut, or white walnut, affords the most valuable. An extract made from the inner bark of it, had long been known as a popular purgative. During, however, our revolutionary war, when drugs became very scarce, the medical men of the army employed it as a substitute for the more elegant medicines of the shops. It has since been introduced very generally into practice, and is certainly entitled to much confidence. I have used it a great deal, and have seen it used even more. In the dose of from ten to twenty grains, it operates actively, evacuating, thoroughly, the con-

* Linnæus.

† Michaux.

tents of the bowels. In the southern country, and especially in Virginia, it is much resorted to as a purge in all bilious cases, and is supposed to be well calculated to clear the alimentary canal, preparatory to the administration of the bark, or other tonics, in the intermittent fever. Its efficacy may be increased by the addition of calomel. The extract should be made about the month of June, as the bark of the tree is, at this period, considerably more powerful.

CONVOLVULUS JALAPA.

The plant which furnishes this powerful cathartic, is a native of Mexico, and found near the city of Xalapa, from whence its name is derived. But it has since been discovered near Vera Cruz, and in the south of Florida, and we have some reason to suspect, that it exists within the limits of our own territories. It is the root that is used in medicine, and which is brought in transverse slices, solid, hard, and heavy, of a dark grey colour, and striated texture. The jalap has little smell, and scarcely any taste. When swallowed, however, it affects the throat and fauces with a slight pungency. Jalap is a very powerful purgative, its activity residing principally, if not wholly, in the resin, which, though given in small doses, occasions violent griping. The gummy part bears an inconsiderable proportion to the resinous, and is

found to have little or no effect on the bowels, though, as a diuretic, it is extremely active. This is the opinion which has long been received on the subject. But recent experiments would go to shew, that the distinction in the properties of the two constituent parts of the medicine, is not well founded.

The dose of jalap, is from twenty to forty grains. It is, however, commonly given in combination, and especially with calomel, in the proportion of ten or fifteen grains of each, which constitutes, undoubtedly one of the most certain and efficacious of the purgatives, singularly well suited to the evacuation of bile. Triturated with the crystals of tartar, jalap will operate in smaller doses, than when taken by itself, and without harshness; and such is also the case, when it is united with ipecacuanha.*

From its active properties, jalap has been much used in the commencement of bilious fevers. Combined with calomel, in the dose of ten grains each, it was the purge which came to be generally employed in the yellow fever of this city, while the disease was considered highly bilious. As a hydragogue, it had formerly an unrivalled reputation, so much so, indeed, that it was distinguished by the appellation of *panacea hydropicorum*. My experience persuades me, that it is entitled to much of the praise which has been lavished upon it in dropsy. But I cannot help think.

* Vide Aikin's Mat. Med

ing, that its efficacy is increased, by uniting cremor tartar with it. Ten grains of the one, with a drachm of the other, constitute the best medicine which I have ever tried, not only in the dropsical, but in all other cases, where long continued purging is demanded.

CONVOLVULUS SCAMMONIA.

The scammony is supplied by a plant, so called by Linnæus, growing in Asiatic Turkey. From an incision made into the root, there issues out a milky fluid, which, by inspissation, becomes concrete, and constitutes the scammony of the shops. The best of this article is imported from Aleppo, in light, spongy masses, of a shining blackish colour, having a faint, unpleasant smell, and a bitterish, pungent taste, and consists of a resin and a gum, in nearly equal proportions.

The Greek and Arabian physicians employed scammony as a purgative, and externally in the discussion of tumors, and as a wash for tenia capitis, and in the herpetic eruptions. By Boerhaave, it was much used as a purgative, and since his time, has been considered as a safe internal medicine. The scammony, however, is very harsh and violent in its operation, and is now little prescribed, except in combination with other substances, which temper its effects. The common dose is from five

to ten grains. The genuine scammony plant, I have understood, has recently been discovered in New Jersey.

STALAGMITIS GAMBOGIODES.

Gamboge is a gummy, resinous concrete, brought from the East Indies. It was formerly supposed to be the product of a tree, called, in the oriental language, *Coddam Pulli*. It is now better ascertained to be the stalagmitis gambogioides. But the accuracy even of this statement is questioned. It is not, indeed, precisely known, from what tree we derive it, though several are named by different writers. It is denominated gamboge, from the country whence it comes. As received here, it is in large flakes or rolls, of a deep yellow colour, with no smell, and very little taste.

Exhibited in a full dose, the gamboge operates most violently, both as an emetic and cathartic. It was, on this account, much used in the yellow fever in this city, in cases, in which it was deemed, at one time, expedient to excite an artificial cholera morbus. But, in smaller doses, the gamboge acts, very generally, with sufficient mildness. Combined with calomel, in the proportion of two, three, or four grains to ten, it proves a most powerful evacuant of bile. No medicine, indeed, in some of the bilious cases, is to be preferred to it.

Like the other drastic cathartics, the gamboge has

also been celebrated for its power in dropsies. It has been employed alone, and in connection with cremor tartar, though I have not understood that it displayed any peculiar efficacy. On the old practice of treating gout by the drastic purgatives, I have already expatiated. During the period when this system prevailed, such was the reputation of the gamboge, that it came to be distinguished by the appellation of “gutta ad podagram.”*

HELLEBORUS NIGER.

Of the same description of purgatives, is the helleborus niger, or black hellebore. It is also known by the title of melampodium. Doubts have been entertained, as to the origin of this last appellation. The most obvious etymology, however, is, from Melampus, one of the earliest of the Greek physicians, who is said to have observed its purging effects upon some goats, which fed on it, and hence to have introduced it into the materia medica.

By the ancients, hellebore was held in the highest estimation as a cathartic, and was very extensively employed by them, in a great variety of cases. It is especially extolled by Hippocrates, and his successors down to Galen, who seem to have considered it as the most valuable of the purgatives. But

* Hill's Mat. Med.

when milder medicines, of the same class, were brought into practice by the Arabians, and still more by the discovery of the New World, hellebore came, in a great measure, to be superseded.

It was originally supposed to be singularly useful in the diseases of the mind, and particularly in melancholia. The practice of antiquity, in this case, consisted, indeed, chiefly of purging with the hellebore. There is somewhere recorded, the story of Melampus, the physician to whom I have already alluded, having acquired immense wealth and renown, by restoring to reason the daughters of an eastern monarch, of great dignity and power, who had all, from some cause, been deranged. The only article which he employed, was the hellebore. But distinct from this, perhaps a fabulous tale, we have, in the authentic writings of the earlier ages, sufficient evidence of its utility, in the several forms of insanity.

Notwithstanding, however, the facts which might be collected in its favour, it is exceedingly problematical, whether hellebore is possessed of any peculiar powers in the mental affections. But, as was formerly observed in the treatment of many of these cases, there is no remedy entitled to greater confidence, than active, and even violent evacuations from the bowels. They sometimes will subdue the fiercest forms of mania, and as often awaken the sensibility of the system, in the lowest depression of melancholy. The more griping the purga-

tive, under such circumstances, the greater its efficacy, and, on this account, the hellebore, which is uncommonly severe in its operation, must, like the rest of the drastic cathartics, have done good.*

CUCUMIS COLOCYNTHIS.

The colocynthe, or coloquintida, is the produce of Syria, and some of the islands of the Grecian Archipelago. It is the soft pulp of the fruit, a species of gourd, dried, which constitutes the medicine of the shops. This has little smell, but is so intensely bitter, that it was once called *Fell Terræ*, the gall of the earth.

Colocynthe is one of the oldest articles of the materia medica. To Hippocrates it was well known, and by him, not to mention many other writers, it is described as a most active cathartic, pre-eminently endued with all the powers of a hydragogue. Besides having this property, it is alleged by the ancient authorities, to be highly beneficial in the affections of the head, whether acute or chronic, in obstructions of the viscera, and especially of the uterus, in epilepsy and similar complaints, and in the diseases of the skin. Whether it is really calculated to be of much service in the preceding cases, I cannot speak from my personal knowledge, having rarely given it alone. When prescribed by me, it has been with the view to pro-

* Emenagogues.

mote the operation of the slower cathartics, as aloes, rhubarb, calomel, &c. Combined with calomel especially, I have sometimes directed it in mania, and in apoplexy, coma, and palsy. To all these diseases, which are invariably attended with more or less torpor of the alimentary canal, it is admirably suited. The dose of the colocynthe is from four to six grains. Externally applied, about the region of the navel, it is said to display all its purgative effects.

CUMUNIS AGRESTIS.

The last of the cathartics which I am to notice, is the elaterium. This is the cucumis agrestis of some, and the momordica elaterium of other botanists. The popular title is the wild cucumber, so called from its analogy to the vegetable which bears the same name. This plant grows in several countries of Europe. As yet, however, it has not been found within the United States. The elaterium of the shops is the inspissated juice of the fruit, or the cucumber itself, previously pressed. It comes to us in small thin cakes of a loose and friable texture.

The ancients were well acquainted with the powers of this medicine, and prescribed it freely, especially as a hydragogue. By the Greeks it was termed elaterium, which signifies to dart or squirt, most probably from the forcible manner in which it

ejects the contents of the bowels. As a cathartic, the elaterium is, in the most remarkable degree, harsh, griping, and irritating, to such an extent, as occasionally to produce inflammation of the intestines, and even bloody discharges. Nevertheless, its operation is sluggish, unless promoted by some more active article, and besides, it sometimes proves emetic, and disappoints our expectations, though commonly in a full dose, it operates both upwards and downwards. In one respect it differs very widely from the class of remedies to which it belongs. During its action, the whole system is highly stimulated, so much so indeed, that the pulse and other circumstances indicate pretty considerable febrile action. It is, in short, indisputably the most violent cathartic with which we are acquainted, and ought therefore to be resorted to with great caution, and only when the more lenient medicines have failed. The dose is from half a grain to two or three grains.

I have remarked, that the elaterium was known to the ancients. It appears that even up to the period of the last half century it was still in the hands of some practitioners. By Sydenham, by Lister, by Hoffman, and all their cotemporaries and immediate successors, it is very strenuously recommended in dropsy. But, for various reasons, and particularly on account of its unpleasant effects in many instances, it gradually lost ground, till finally it slipt altogether out of practice. We

may form some idea of what were the effects of elaterium when largely given, from the following declaration of a writer who appears to be conversant with the medicine: "*Elaterium esse in cataloga, diaboli, quo necat homines,*" &c. In the course of the last few years, however, its use has been once more revived by Dr. Ferriar of Manchester, who has published a series of cases illustrating its great powers in the several varieties of dropsy, and especially in hydro-thorax.*

ENEMETA.

As supplementary to the consideration of cathartics, I proceed to make some remarks on the use of enemeta or clysters. These, though they may appear very humble means, are often employed as substitutes for the purgatives, and have been found to answer in practice many important purposes. Every part of the alimentary canal maintains the most intimate relations with the system, and on this account remedies applied to either extremity of it are productive of pretty nearly the same results, though when introduced into the rectum, as a general rule, they ought to be used in about three times the dose.

I shall treat of enemeta in the order of the indications which they are calculated to fulfil. Most

* This is the prescription of Ferriar:—R Extract. Elaterii gr. i. Sp æther. nitros, unc. ij. Tinct. scill. Oxy mel. colchic. sing. unc. fs. Syrup rhamni, unc. i. ft. solut. Capt. drach. i. ex. aquæ panxillo, ter quater-ve in die.

commonly, we recur to clysters to promote the tardy operation of a cathartic, or to evacuate the bowels, where from delicacy of stomach, medicines cannot be retained. All which is required here, is a simple laxative mixture, composed of an ounce of castor, or olive oil, and the same quantity of molasses, with a pint or more of tepid water, and to render it somewhat stimulating, a table spoonfull of common salt may be added. But it frequently happens in obstinate constipations proceeding from various causes, that the most active injections become indispensably necessary. Of this description we have a vast number, and one which is very generally directed, is a large solution of glauher salts, alone, or with oil. What however answers, I think better, is the terebinthinate clyster, which I make by blending very intimately one or two table spoonsful of the oil of turpentine with the yolk or white of eggs, and afterwards add a full pint of water, or which is preferable, the thin mucilage of gum arabic, or flax seed. This is a very valuable prescription, under all circumstances of obstructed bowels, and particularly of flatulent colic. But if these ingredients can not be had, a watery solution of assafœtida, may sometimes be used in place of it, though it has less efficacy.

By some practitioners, an infusion or decoction of the drastic purgatives, has been strenuously recommended, and of the colocynthe particularly. The mode in which it is prepared, is to boil three

drachms of it in a pint and half of water for twenty minutes, and then strain the fluid, to which add one ounce of oil, and as much of the sulphate of magnesia. My ordinary injection of this sort, is a full pint of a strong infusion of senna, mixing sometimes with it a drachm or two of jalap, with the effects of which I have had much reason to be satisfied.

An opinion has been advanced, that enemata act pretty much by the stimulus of distension, and hence the mildest fluids answer as well for the purpose as the more active articles. To a certain extent this is true, and in cases of stubborn constipation, the fact should be recollected as a guide to our prescription. Yet we have the clearest evidence of the susceptibility of the intestines to the impression of medicine, and of the increased power of the remedy before us, by the addition of a cathartic substance. Distension of the bowels by warm water, having, in some instances, overcome obstruction when the active enemata had failed, proves nothing, since the same effect is produced in the stomach, by similar means, in the torpid state of that viscus, and yet no one would deny the general power of emetics.

Enemata, of a very opposite character to those I have enumerated, are also prescribed in analogous cases, and which act chiefly, by inducing extreme relaxation. Every one has heard of the efficacy of tobacco with this view, either in the shape

of decoction or of fumigation. The first preparation consists of a drachm of the leaves to a pint of water. But so distressing at all times are the effects of this remedy, and often so alarming, that it ought not to be resorted to, except on an emergency, and even then, it will be advisable to proceed cautiously, and to exhibit only half the quantity at once. Death has sometimes happened from this injection, and I have repeatedly witnessed the life of individuals placed in great jeopardy from it, and still it is a remedy of such indisputable efficacy, that we cannot entirely dispense with it. By Mr. Earle it has therefore been lately proposed, that as a substitute for the enema, we should in all cases use a suppository of tobacco, which at a moment may be withdrawn, and all bad consequences thereby averted.

For the administration of the tobacco fumes, a particular apparatus has been invented. But should this not be at hand, it may be done very conveniently with a common clay pipe, introducing the tube into the rectum, and covering the mouth of the bowl with a fold of linen, through which the smoke may be blown into the bowels.

It has been mentioned, that tepid water alone, often succeeds in opening the bowels. The very reverse of this is sometimes practiced, with still greater advantage, under desperate circumstances. I have, more than once, known the most unrelenting constipation removed, by throwing up the rectum the coldest water, even iced water has been used.

Effectual, however, as the preceding formulæ will generally prove, cases do occur in which they fail. As a dernier alternative, I would suggest the bold exhibition of the emetic tartar, as formerly pointed out, from twenty to sixty grains of it being dissolved in water, and injected, and which may be repeated, if necessary.

It is to be recollected, that clysters rarely reach, even when most forcibly urged, beyond the sigmoid flexure of the colon. They act principally, by exciting the lower portion of the intestinal tube, and produce only partial discharges. It is on this account, that they are comparatively of little service, unless a purgative has been previously taken, in which event, by promoting its operation, the alimentary canal becomes completely evacuated. But this is not invariably the case, as it sometimes happens, that the local impression is extended through the medium of sympathy, and that very thorough and copious discharges are the consequence. Nevertheless, to accomplish this end, the injection should be frequently repeated, and the largest possible quantity of fluid, which the bowels will admit, must be employed. To be more precise, however, I will state the measure adapted to the several stages of life. An infant, at its birth, or soon after, requires one ounce. A child, between the age of one and five years, from four to six ounces. A youth of ten or fifteen years, a pint, and an adult, not less than a pint and a half, or a quart. This is the maximum, and apportioned to extreme cases.

The means in use, for the administration of injections, are, a pipe and bag, or a pewter syringe, both of which are exceedingly defective, where we wish to throw up a large quantity. The best instrument for this purpose, is De Haen's, a common syringe, with a lateral tube fixed to it, through which it may be replenished without drawing it from the rectum. No doubt, by this contrivance, so much fluid might be injected, as to overcome, by mere distension, almost any obstruction of the bowels. This, indeed, is no longer a matter of conjecture, as the experiments of De Haen himself shew the practicability of it, he having, with this very instrument, completely filled the colon of a dog, forcing the valve, which offers the resistance to the passage of fluids, upwards.

There are many other indications which injections are capable of answering. But, as these do not properly appertain to cathartics, I cannot notice them in this place. All that I shall now remark further is, that, when clysters are used as fomentations, the blandest fluid, in large quantity, is selected, that, to restrain diarrhœa, or to relieve spasm of the bowels, or for any anodyne purpose, an ounce of thick mucilage, with a portion of laudanum, is the form adopted, and that, to remove the tormena, or tenesmus, of dysentery, the best injection consists of a pint of melted butter, perfectly fresh, or, in other words, without salt.

DISCOURSE XIII.

Of Diuretics.

THESE are remedies which promote the urinary discharge. As respects their precise mode of operation, some difference of opinion has always existed. It was formerly believed, and is even now, by those who retain any of the prejudices of the humoral pathology, that the articles of this class enter the circulation, with an entire retention of their powers, and act directly on the kidneys. Entertaining this impression, diuretics were much prescribed at the time, with a view of expelling certain peccant matters, which were imagined to be the cause of particular diseases. But, whatever may be the utility of the practice, under certain circumstances, there can be no doubt of the inaccuracy of the views by which it was dictated.

An increase of the urinary discharge may take place, either by stimulating the kidneys, or by an invigoration of the powers of absorption, and especially in cases of dropsical effusion. It hence appears, that diuretics are of two species, though, in which ever mode they operate, it is by an action primarily on the stomach, extended to the absorbents, or kidneys, according to the affinity of the article to the one or the other of these parts. As the

operation of these remedies is not a little influenced by certain circumstances, it is right that these should be indicated.

By a law of the animal economy, it would seem, that the discharge from the skin and the kidneys, is in an inverse proportion. Whatever increases perspiration, will, most commonly, diminish the urinary secretion. It is on this account, that, in the administration of diuretics, we studiously avoid the application of external heat, and, as much as possible, with this view, keep the patient out of bed. Cold to the surface, on the contrary, heightens their effects, and, when admissible, may be resorted to with very great advantage. This, indeed, is so strikingly the case, that exposure to cold air, or walking on a cold floor, or immersing the feet in cold water, or cold applications to the pubes, will often excite the action of the urinary organs, when every thing else has failed.

The operation of diuretics is also promoted by the use of diluent drinks. It is obvious, that, if much liquid be taken into the stomach, it must be eliminated by perspiration or urine. Yet there are states of the system, in which it has been thought doubtful, whether it would be prudent to endeavour to excite the increased flow of urine by these means. It sometimes happens, that the serum of the blood, instead of passing off by the natural emunctories, is effused into some one of the cavities of the body, or cellular membrane, giving rise to

dropsy, or, if it previously exists, aggravating the disease. An apprehension of this sort, has so strongly prevailed with some practitioners, as to lead them, under such circumstances, to enjoin, as much as possible, an abstinence from drinking, and, it is alleged, that such abstinence has, in some instances, effected cures. But this statement, I suspect, will not bear a very rigorous scrutiny. Facts to this purport, are of rare occurrence, and the numerous examples of the total failure of the practice, have led finally to its abandonment. It is, indeed, a very painful and difficult task, to resist the vehement thirst, which usually attends this disease. Drinks, in these cases, most fortunately, seem to promote the urinary discharge, and, of course, to reduce the degree of effusion, while, on the contrary, the abstinence, which has been thought so important, conduces manifestly to the inactivity of the kidneys, and to a correspondent accumulation of water.*

By observing their beneficial tendency, the practice has, for some time, become very general, to endeavour to invigorate the action of diuretics, by the copious use of diluent beverages. Common water often answers the purpose exceedingly well,

* "I have frequently found, that a very entire abstinence from drinking, by diminishing the quantity of urine, allowed the secretories of the kidneys to fall into a contracted state, so that the quantity of urine voided was still further diminished, and, as I judged, tended to increase the effusion, and thereby, to aggravate the disease." *Cullen's Mat. Med.*

though water, impregnated with the vegetable acids, will be found more agreeable to the patient, and of decidedly superior efficacy. Even by the use of such drinks alone, cures of dropsy have been effected : to which point we have the evidence of Sir George Baker, of Sir Francis Milman, and of Cullen himself, not to mention a variety of other names, of nearly equal respectability. The propriety, indeed, of indulging the patient in a liberal use of drink, is now so incontestibly settled, by the concurrent approbation of the ablest practitioners, that it would be superfluous in me to attempt to enforce it by any theoretical deductions, or by a recurrence to additional authorities.

The action of diuretics, is, moreover, promoted, by the reduction of arterial action. The blood vessels, and lymphatics are, to a certain extent, antagonizing powers, and, while the former retain their force, the functions of the latter are feebly exercised. No one, indeed, can have failed to have observed the activity of absorption in most cases of debilitated circulation, and how imperfectly it proceeds where the pulse is febrile or excited. Instructed by this very obvious fact, we should always, in the use of diuretics, watch attentively the state of the system, and duly regulate it, by occasionally recurring to venesection, or purging.

Diuretics have been recommended in many diseases. But it is in the several forms of dropsy, that they have displayed their best powers, and are ge-

nerally employed. The manner in which they operate, in these cases, has been a matter of doubt and speculation. It has appeared inexplicable to some, how any evacuation by the kidneys, can remove the accumulation of fluids in the cavities of the body. To me, however, I confess, there is no such difficulty in the case. As I have already hinted, there are two sorts of diuretics, the one having an immediate relation to the urinary organs, and the other to the lymphatic system, and, in the cases alluded to, it is to the latter we are chiefly to ascribe the effects.

As might be supposed, the use of diuretics has been extended, so as very generally to embrace the diseases of the urinary organs. There is, indeed, scarcely one of these affections, in which some one of this assortment of articles is not occasionally prescribed, and often, as affording the best means of relief.

As respects their utility in nephritis of every species, however induced, it is a matter so well known, and universally admitted, that little need be said on the subject. But, these cases are exceedingly different, and connected with such opposite conditions of the system, that, for their successful management, some nicety of discrimination is required, in the selection of the proper article from the large and diversified class of diuretics. Equally do these remarks apply to the affections of the urinary bladder, these being also exceedingly various, and exacting very dissimilar remedies. To point out now,

with any sort of minuteness, the relation of the several articles of this class of medicines, to the cases of disease to which I have alluded, would be only an anticipation of what can be much better done, when I arrive at the consideration of particular diuretics.

It appears, that at one time, no slender confidence was reposed in the powers of diuretics in the disorders of the lungs, whether of an acute or chronic nature.

“In omnibus morbis pectoris ad urinam spectandum.”

This is the language of a distinguished writer, by which he meant to express the importance of attending to the appearance, as well as to the promotion of the urinary discharge, in these cases. Certain it is, that, considering how much, and variously this secretion is affected by morbid impressions, we do, in the present state of medical refinement, improperly overlook it, not only in forming our estimates of disease, but also, as furnishing a means of cure.

By a writer of no ordinary intelligence,* it has lately been shewn, and, I think, with sufficient probability, that the urine, at least in dropsy, affords, among the most unerring criteria of the several states of the disease, and, of course, the leading indication of treatment. Nor should it be forgotten,

* Blackall on Dropsies.

that, by the ancient cultivators of medicine, who, confessedly, are unrivalled in the precision and fidelity of their observations, the urine was greatly attended to, in framing their prognostics. Why we should so carefully inspect the alvine evacuations in disease, and be totally heedless of the urinary discharge, is neither to be explained nor vindicated.

The kidneys are one of the emunctories, through which nature, when oppressed by disordered action, endeavours to relieve herself, and this she does chiefly, by throwing off the more watery parts of the blood, which, in some instances, amounts to a very large quantity. Evacuations of this kind, by emptying the blood vessels, though, perhaps, not so effectual, have, unquestionably, a tendency to reduce morbid excitement, and, therefore, are entitled to be classed with the other depleting remedies, as venesection, sweating, purging, &c.

If these views be correct, it follows, that diuretics are susceptible of a much wider practical application than has hitherto been made. No reason, in fact, exists, against their use in all diseases of much action, provided the milder ones be selected, either as auxiliary in the plan of depletion, or, where other means failing, separately and independently. Whether they are particularly serviceable in the pectoral affections, as has been alleged. I cannot say from any experience of my own. More than one of the active diuretics are much prescribed in these cases, but not exactly with the aim of exciting the urinary secretion.

The febrile inflammatory affections are sometimes most indubitably benefited by medicines of this class, and it may be remarked, how often these cases are brought to a favourable issue by a spontaneous diuresis, and this, I think, I have especially seen in gout and rheumatism. That some of the affections of the head, and mania included, may be successfully treated by these remedies, my own experience has satisfied me. Copious discharges from the kidneys, kept up, without remission, for a succession of days, will as completely reduce the force of the circulation, and calm the violence of excitement, in some of these distemperatures, as the detraction of blood, or any other means, with which I am conversant. Neither should we forget in speculating on the probable utility of this set of medicines, that many of them operate most powerfully on the absorbents, a system of vessels, much more concerned in the production, as well as the removal of disease, than has generally been suspected. This order of diuretics, however, will be found chiefly suited to the feeblér forms of morbid action, embracing a considerable proportion of the cachectic affections.

As diuretics, the number of substances which has been celebrated, is prodigiously numerous. But many of these are very inefficient, and, a character common to the whole, is that of extreme uncertainty. This is, in part, owing to the want of discrimination in the application of the medicines, and still more to the circumstance, that there is hardly one

of the class which is exclusively diuretic. They are almost all possessed of other powers, and especially, are diaphoretics or purgatives, and whenever either of these properties preponderates, diuresis, so far from being increased, is commonly altogether restrained.

Of the rules to be attended to in the use of diuretics, the following are the most important :

1. Be careful in the selection of the article, that it is properly fitted to the case.

2. Never prescribe diuretics, if it can be avoided, to a patient in bed.

3. Let the temperature of the room be low, and all determinations to the surface, prevented.

4. As absorption is always promoted by the reduction of arterial action, attend to the pulse, and keep it down below the natural standard. This is applicable, especially to the treatment of the dropical effusions. But avoid depletion by venesection or purging, during the action of a diuretic.

5. Where the full and complete effect of the medicine is wished, give diluent drinks freely.

Of Particular Diuretics.

As in preceding cases, I shall treat of these medicines under the two heads of the lenient, and the active or stimulating, and first, of the

MILD DIURETICS.

The potassa or potash, either pure, or in a state of

imperfect carbonate, evinces, in some instances, very considerable diuretic powers. By the older physicians, and, indeed, the custom is continued to the present time, among common people, the ashes of a variety of vegetables were used in dropsy. Being, however, only efficacious from the alkaline matter which they contain, the sub-carbonate of potash, as prepared in the shops, has completely supplanted them in regular practice.

Of this medicine, I do not know a great deal from my own experience, though, from the few trials which I have made with it, I am disposed to think not altogether unfavourably of its properties. Exhibited in the dose of half a drachm dissolved in water, and repeated several times in the day, it has commonly proved, with me, considerably diuretic, and sometimes equally purgative. Cullen, who is abundantly sceptical on the subject of medicines, speaks not altogether contemptuously of this one.

The cases of dropsy, in which the potash is, perhaps, more particularly useful, are such as are connected with great depravation of the powers of digestion. It is common, under such circumstances, for an acid to be evolved in the stomach, which produces, or is associated with, some very distressing affections. Cullen was of opinion, that the alkali owes all its diuretic properties to a conversion into a neutral salt, by an union with this acid. But I doubt the accuracy of this hypothesis.

By combining the potash with any of the bitter

tonics, we very much improve its efficacy in these cases. Thus exhibited, it is said to increase the diuretic effect, while, at the same time, it removes the gastric disorder, and invigorates the system generally. To Sir John Pringle we are indebted for this practice, which has since been imitated with sufficient success to warrant my noticing it. Yet, it must be confessed, that the alkali is very inferior to most of its combinations with an acid, forming what are called the neutral salts. All of these have very considerable powers, though there is one, which has been supposed to possess it in so great a degree, as to be emphatically called *sal diureticus*. Notwithstanding its former reputation, I am not disposed to say much in its favour. The few trials which I have made with it, have disappointed my expectations. Like all the neutral salts, it has the mixed quality of a mild aperient with that of a diuretic, though I suspect it is more apt to act on the bowels than kidneys. Comparatively, at least, it is much inferior to several of the same class of articles. The dose is about thirty grains, dissolved in water, to be repeated four or five times a day.

TARTRAS POTASSÆ.

This, which is as well known by the title of soluble tartar, is still retained among the diuretics. There are some of my medical friends, indeed, who repose much confidence in its powers. But my own

experience with it has not led me to appreciate it so highly. Given in the dose of a drachm, several times a day, it will, now and then, very actively, promote the urinary discharge, and, at the same time, bring away watery stools.

SUPER TARTRAS POTASSÆ.

This is not a neutral salt exactly, though it is nearly so, and, in all its medicinal properties, so closely resembles these preparations, that we should do a sort of violence in removing it to any other place. The cremor tartar has been much employed in dropsy, and is a very valuable medicine. To ascites and anasarca it seems, however, to be the best adapted.

Of all our diuretic medicines, it is perhaps, most fitted to those cases of dropsy, which are accompanied with increased or febrile action of the pulse, though it here, sometimes, operates more effectually when combined with jalap, or some other drastic purgative.

Cremor tartar has been strenuously recommended in this disease, by several highly respectable practitioners, among whom are Home and Ferrar. By experiments they were led to consider its anti-hydropic power, to use the phrase of one of these writers, as quite equal to the digitalis, and, in many respects, is to be preferred to that active, and, in some degree, hazardous medicine.

My intention is not to make any comparison between the two articles, nor do I see how it could well be done. They are possessed of very different properties, and seem to me not at all applicable to the same description of cases. Certain it is, however, that the cremor tartar, if judiciously administered, will often disperse dropsical swellings more speedily than any other medicine. When it does this so expeditiously, I have observed, that it is by a combined operation on the kidneys and bowels, producing free discharges of urine, and copious watery stools. This fact I mention the more particularly, because there are two modes of exhibiting the article, in which its effects are not a little different. Dissolved in a large quantity of water, it acts merely as a diuretic, whereas, the same dose given as an electuary, or in a small portion of water, either alone, or in combination with some other purgative, will operate as an hydragogue. The latter mode, from what I have said, is, therefore, to be preferred, where we wish to evacuate large accumulations of fluid, and it will be here proper also to enjoin on the patient an abstinence from drink. This should not be forgotten in practice. The dose of the cremor tartar alone, is about a drachm, to be repeated every three or four hours.

NITRAS POTASSÆ.

As a diuretic, the salt of nitre has been much pre-

scribed, and is, unquestionably, one of our best remedies in dropsy. It seems, however, to do good in this complaint, more by subduing febrile action, than by the promotion of the urinary discharge. Dropsy, in its first stages especially, is very often connected with a strong pulse, and a high degree of excitement. Cases of this description are only to be cured by first reducing the force of the circulation, and, as one of the means of attaining this end, the nitre is eminently useful. The average quantity of the medicine directed, is a drachm a day, and a very common mode of giving it, is, dissolved in some diluent drink. But it is better to divide this quantity into six or eight powders, and I am sure that its efficacy is improved, by a small addition to it of emetic tartar, and in some cases, also, by that of calomel.*

SPIRITUS ÆTHERIS NITROSI.

As one of the mildest of the diuretics, I shall say a few words on the dulcified spirit of nitre. This medicine has long been held in great esteem, and it certainly answers a great variety of indications. As a diuretic, it sometimes proves very active, when largely given. But it is chiefly valuable in the cases of children. We have, indeed, scarcely any medicine which, in their complaints, we can substi-

* For the exact prescription, vid. Diaphoretics.

tute in its place, and it may be given to them, even in the earliest periods of life. Besides dropsy, to which children, in certain parts of our country, are very subject, the spirit of nitre is a very valuable remedy in the disorders of the urinary passages, and particularly in partial or complete suppressions of urine.

We commit a mistake, in giving too little of this medicine. As a diuretic, the dose for adults should always be half an ounce, and for children, in the same proportion. The spirit of nitre is one of those articles which has also, in some measure, a tendency to excite perspiration, and, exhibited in a reduced quantity, it is much more apt to be directed to the surface.

APIUM PETROSELINUM.

The last article of this section of diuretics which I shall notice, is the common parsley of our gardens. Every part of the plant is actively diuretic, though a strong infusion of the roots I have usually prescribed. The seeds will probably answer as well. Having become a domestic remedy, the parsley has been too much overlooked in regular practice. I know of no diuretic more valuable, in certain cases.

In dropsy, it has, undoubtedly, done good, having, within my own knowledge, cured ascites, where tapping had been twice used. But, beneficial as it may be here, I suspect it is still better

adapted to the ordinary suppressions of urine. In strangury from blisters, it is one of our best remedies, and I think it scarcely less serviceable in similar affections from other causes. The painful micturation, so habitually an attendant on nephritis, I have sometimes relieved by its use.

This medicine is recommended, particularly by the circumstance of its being retained, nearly under all circumstances, and, which is the more important, as the stomach is generally very irritable in the complaints of the urinary organs. To heighten the effect, it is customary to unite with the parsley, the seeds of the watermellon, but, whether any particular advantage is gained by the addition, I am prepared neither to aver nor deny.

DISCOURSE XIV.

Digitalis Purpurea.

BESIDES the mild and stimulating diuretics, we have a set of articles, strongly possessed of the power of increasing the urinary discharge, hitherto denominated sedative, which may, perhaps, with propriety, be interposed between these two sections of this class of remedies. Of these sedative diuretics, by far the most prominent and interesting article, is the *digitalis*, or *fox glove*.

This plant is not a native of the United States, though it is cultivated among us, and succeeds perfectly well, and may, therefore, be considered as naturalized in this country. Of the several species of fox glove, the one which is selected for medicinal use, is the *digitalis purpurea*.

This is a luxuriant plant, growing to the height of two or more feet, if the soil be fertile. The leaves are large, oblong, covered with hairs, and serrated. They have a bitter, nauseous taste, with some acrimony. The blossoms, which appear on the second year, are of a purple colour, elegantly mottled on the inside. Every portion of the plant possesses its peculiar powers, but the leaves are preferred for medicinal purposes.

Considerable attention is required, in the selec-

tion and preparation of the medicine. The leaves should be gathered when the flowers are just beginning to develope themselves, and the largest and deeper coloured are the best. They are to be carefully dried in a warm room, through which a current of air passes, and when crisp, to be reduced to powder, and kept in bottles closely corked, and not exposed to the light. These are the directions of a writer, who has devoted much attention to the subject. It is a more common practice, however, to preserve the leaves entire, and, from what I have heard, the virtues are, in this mode, best retained.

The effects of digitalis on the system, are somewhat peculiar, and there is no little difficulty in determining its precise mode of operation. In a full dose, it produces exhaustion of power, marked by a great and sudden reduction in the vigour of the circulation, the pulse being diminished, both in frequency and force, falling, sometimes, from seventy-five or eighty to thirty or forty beats in a minute, and is rendered exceedingly small and tremulous. This is accompanied with sickness, anxiety, vertigo, dimness of vision, and, in a very large dose, with vomiting, syncope, coldness of the extremities, coma, convulsions, and, pushed a little further, by death. But these consequences of the medicine are not uniform, as, even from the same dose, we observe considerable diversity of operation in different individuals. Thus the pulse is sometimes ren-

dered lower, without being diminished in fulness, while, at other times, it becomes broken and irregular, imparting a sort of jerking, or convulsive stroke. Nor does sickness, or other gastric affections, always attend even its extreme, much less its usual, operation. In some cases, when administered in the ordinary quantity, no effect whatever is evinced for a considerable length of time, and then suddenly, and very unexpectedly, the whole of its powers are disclosed, to such an extent, indeed, as occasionally to excite alarm for the safety of the patient. Examples of these violent effects, are not of very frequent occurrence, though they are sufficiently so, to create some degree of circumspection in the use of the article, where we find its operation slow and protracted.

I have had several opportunities of witnessing, especially in dropsical effusions, that, though the medicine, for a succession of days, were given in an ample quantity, that it was entirely passive, neither influencing, perceptibly, the arterial or absorbent vessels, nor disturbing any of the functions of the animal economy, when, almost instantly, there would come on, depression of the pulse, a loss of general power, and a profuse discharge by the urinary passages. Thus induced, its effects will continue for several days without the slightest abatement, though the medicine be omitted, being analogous, in this respect, to mercury.

Another singularity attending the digitalis, origi-

nally mentioned in the Edinburgh Medical and Surgical Journal, is worthy of attention. I allude to its action being, in some instances, regulated by the different positions of the patient's body. In the case in which this extraordinary peculiarity first attracted observation, the pulse was not at all lessened in frequency when the patient stood up, being, in this posture, upwards of an hundred: but in sitting down, it fell to seventy-five, and when lying on his back, to forty strokes in the minute. The experiment was repeated again and again, and with precisely the same result. Cases of a similar nature, though not in the same degree, have since been recorded by Hamilton, Beddoes, and other writers of respectability, so as to leave no doubt of the occasional existence of the fact. These anomalies, or exceptions to the ordinary operation of digitalis, are curious in themselves, and eminently interesting in a practical point of view.

It has been a matter of considerable discussion among practitioners, ever since the digitalis claimed much attention, whether it produces its more regular effects by a sedative or a stimulant operation. I do not mean to entangle myself in this idle dispute. Conformably to the definition which I have already delivered of those terms, it appears, that I, at least, must place it among those articles which are calculated to reduce action. It is, nevertheless, insisted, and, from actual experiments too, that its primary

operation is, to increase the number, and in some instances, perhaps, the force of the pulsations. This, however, even admitting it to be true, is a mere transient effect, which passes away in a very short time, leaving the system in a state which can only be referred to the operation of a sedative.

In the experiments to which I have alluded, the effects of the article on the pulse were alone attended to, not the slightest notice being taken of its action on other parts of the system. This is a defect which is incident to almost all the investigations I have met with, of the articles of the *materia medica*. The arterial, is only one of many systems of the body, and is so insulated, in its relations to certain medicines, that very strong impressions may be made upon it, without at all extending to the other portions of the animal machine. The converse is equally true. There are many substances which act intensely on particular parts of the system, without affecting, in the slightest degree, the blood vessels. The state of the pulse, therefore, can never be trusted alone, as affording a safe criterion, by which we are to determine the properties, and *modus operandi*, of medicines. Looking, however, at the general effects of the medicine, as I have already detailed, we can have little hesitation as to the nature and properties of the *digitalis*. Connected by botanical affinity with the *nicotiana*, the *hyoscyamus*, the *cicuta*, the *solanum*, and other narcotic sedatives, it has, with some modification, all the

distinctive features, of its congenera, or kindred plants. Like these, it lessens the mobility, or excitability, and, in this way, it reduces, after a short interval, the actions of the system.

As I have now disposed of all those preliminary points which were necessary to the correct understanding of the properties and *modus operandi* of *digitalis*, I next proceed to the application of it to the cure of diseases. This is no easy undertaking. The fortune of our medicine has been various in the medical world. At one time, it was extolled as the most valuable of remedies, in a wide circle of cases, and at another, proscribed and rejected as inert and useless. This fluctuation and contrariety of opinion has extended to the present moment, and while one set of practitioners consider the *digitalis* as indispensable in the management of certain diseases, there are others of equal respectability, who, in contempt of its properties, would almost be for expunging it from the *materia medica*. These opposite views of the same article are, indeed, very extraordinary, and can only be accounted for by supposing, that the plant, owing to negligence in the curing, has not always possessed equal powers, to the want of accurate observation of its effects, or to its having been given in diseases, or forms of the same disease, which were not all suited to its use.

Of the diseases in which the *digitalis* has been employed, its efficacy in dropsy is least disputed.

To Dr. Withering, we owe the introduction of the medicine into the treatment of this disease. It appears, that he had the most ample opportunities of experimenting with it in every species of dropsical effusion, and, so highly did he estimate its diuretic powers, that he declares, so far as the removal of the water will contribute to cure the patients, so much may be expected from this medicine."

No sooner was the fact known, of the utility of digitalis in dropsy, than the periodical journals were filled with communications from the most eminent men, of its further success in their hands, and, in the list of those who bore testimony in its favour, are the distinguished names of Darwin, Baker, and Percival. The former of these spoke of it with his usual enthusiasm, and thought it serviceable in every variety of effusion, whether occurring in the cellular membrane, or in the cavities of the body. But, in the latter part of his life, he appears to have lost, in some degree, his confidence in the remedy, and it became, finally, his opinion, that it was best suited to those cases of dropsy produced by intemperance and debauchery. Combining the digitalis with the bark, he also gave a grain of opium at bed time, and continued this practice, without intermission, for a length of time. No medicine, I suspect, will be found more useful in all the complaints of drunkards, than opium, and hence I have every reason to suspect, that the above prescription is an excellent one.

By Dr. Ferriar, one of the most able and accomplished medical men of the age, the digitalis has also been used very extensively in dropsy. But the result of his multiplied trials with the medicine, is not so favourable as that of some other practitioners. From a review of the cases which he has published, the following estimate may be made. "Digitalis," says he, "has been given in twenty-nine cases, of which eleven were cured, seven died, two were relieved, and nine remained stationary. But the cremor tartar succeeded in thirty-three cases out of forty-three." It appears, therefore, from this statement, that the digitalis is decidedly inferior, in point of efficacy, in dropsy, to the cremor tartar, an article which has hitherto been considered as having infinitely less power over the disease.

By the no less celebrated Dr. Currie, even a still more unfavourable report has been made of the fox glove, in hydropic affections. Considering the digitalis as a sedative, or highly debilitating medicine, he thought it indeed, wholly inapplicable to a disease which, he maintained, originates in exhaustion.

It would be easy for me to cite many other writers, and such, too, as are by no means contemptible, who go still farther to disparage the powers of our medicine. But it is superfluous, since, by a fair comparison, it will be found, that the weight of authority decidedly preponderates in support of its efficacy. If, indeed, there be a fact in the practice

of physic, which is so deeply rooted in certainty, as not to be disturbed by cavils or disputation, it is, of the superior utility of digitalis in dropsy. There is no species of the disease in which I have not employed it, occasionally, with great advantage, and it seems to me, to be nearly as well adapted to the one as the other. It is useful in hydrothorax, in anasarca, and ascites: all which we have to attend to in its administration, is to see that the system is in a proper state for its reception. As long as there is much activity in the pulse, and a considerable portion of general strength remaining, it will prove disserviceable, and often eminently mischievous. Cases of this description are to be previously managed by venesection, purging, and other directly depleting or antiphlogistic remedies. In these views of the subject, I am fully warranted by Withering himself, whose ample experience entitles his opinion to particular respect. It appears, according to his account, “that in persons of tense fibres, and great natural strength, the medicine seldom succeeded, while, on the contrary, if the pulse were feeble or intermitting, the countenance pale, and the skin cold, it hardly ever failed to do good.” By observing this, he was induced to attempt the reduction of his patients to that state which he conceived was favourable to the operation of the medicine, and for this purpose he chiefly recommends squills and cremor tartar, which, he thinks, are the best preparatives to the use of digitalis.

It has been remarked, that the digitalis is equally serviceable in all the species of dropsy. This is not a common opinion. By many, it is considered to be productive of little advantage in ascites, and to be singularly useful in the accumulations of the chest: to which, I can only state in reply, that my own experience teaches me the contrary. Certain I am, that I have done less good with it in hydrothorax, than in the other cases. My disappointments, indeed, have been so frequent in this particular application of the digitalis, that I have nearly ceased to resort to it, decidedly preferring several other remedies.

Of those who differ from me on this point of practice, Dr. Hamilton, the author of an excellent treatise on digitalis, expresses his opinions with the greatest confidence. "That a collection of water," he says, "in any of the cavities within the chest, must constitute a disease of great danger, by impeding the action of organs essentially necessary to life, cannot be denied, and, it is equally obvious, that such a disorder, if not removed, must soon prove fatal. But, that this desirable object may be obtained by the proper use of the digitalis, experience, by which alone I presume to be guided, will not allow me to doubt. For, since I have adopted the effective use of this medicine in such cases, I have never seen one, however advanced, or desperate, that was not speedily relieved by it: indeed, it has, in such distressing instances, appeared pos-

sessed of powers infinitely beyond what could have been hoped from any medicine whatever, and almost approaching to certainty of effect." Most happy would it be for humanity, were one half of this account correct, and, it is truly surprising, how a writer, otherwise so respectable in every view, should permit his judgment so far to be deceived by his prejudices or enthusiasm, as to make so extravagant and unfounded a statement.

There is a case, however, of dropsical effusion, in which I fully coincide with him as to the efficacy of digitalis. The more violent attacks of scarlet fever are often succeeded by anasarcaous swellings of the lower extremities, and occasionally of the whole body, which are exceedingly troublesome, and sometimes even dangerous. Being considered as the effect of debility, it has been customary to treat this complaint by tonics or stimulants, and rarely with success. Of the utility of active purging, under such circumstances, I have already said much. But, like all other modes of treatment, this will not, uniformly succeed, and there are cases of it connected with a low and enfebled condition of the system, to which it is utterly inapplicable. Exactly where purgatives are precluded, in these affections, will the digitalis be found serviceable.

As might be presumed, our medicine has not been overlooked in the disorders of the urinary organs. By several writers, it is well spoken of in nephritis vera, and I have heard of its being pre-

scribed in painful micturition from other causes, though I am distrustful of its efficacy in these cases. My conviction is, that the digitalis is one of the diuretics which act directly on the absorbent system, and has little or no relation to the kidneys, and to this inference I am led, by having observed, that it never produces an increased discharge of urine, unless there be dropsical effusions in the case.

The digitalis is now prescribed in three different forms, in substance, in tincture, and in infusion. The infusion is made by putting one drachm of the dried leaves into eight ounces of boiling water, to be reduced to seven ounces, to which, when strained, one ounce of any aromatic spirit is to be added. The dose of this infusion for an adult, is about a table spoonful three times a day. The powder is usually given either alone, or mixed with some aromatic, in the dose of a grain, morning and night, and may also be made into a pill, which is, perhaps, a more convenient and agreeable mode of exhibition. Of the tinctures, there are more than one, and, the most approved, is prepared agreeably to the formula of Dr. Darwin. It is made by digesting two ounces of the dried leaves, coarsely powdered, in eight ounces of proof spirit, for some days, and is called the saturated tincture, while that prepared after the directions of the London and Edinburgh Pharmacopœia, contains only an ounce of the leaves. The medium dose of the first, is

about five or six drops, and of the second, double the quantity.

An opinion is entertained by some practitioners, and among others, by Dr. Withering himself, that the infusion is peculiarly adapted to dropsy, or other cases in which the diuretic effect is desirable, and that, in substance, the medicine answers best where its narcotic property is indicated, as in the pneumonic affections. Thus given, it is also alleged, that it is much more apt to produce its noxious or exorbitant effects, as not passing off so readily by the kidneys, the repeated doses, under such circumstances, being accumulated together in the system. As I have never witnessed any such result, or heard of any well authenticated cases of its happening, I presume that this is a mere conjecture, wholly unwarranted by the fact.

In the exhibition of the digitalis, the dose requires to be regularly increased, where we wish to derive full advantage from the medicine. But, in making this increase, we must proceed with caution, from the circumstances already mentioned, that the action of the remedy is, in some instances, suspended for a time, or at least, does not develop itself, and as we are often surprised with inordinate effects, even from a moderate dose, owing to some peculiarity of constitution. Certain signs usually occur, by which we are admonished of its undue effects, and on their appearance, it should instantly be discontinued. These are, retardation of the pulse,

palpitations, faintness, sickness, and purging. There is, likewise, a membranous tensive pain of the head, sometimes over one eye, with a sort of disturbance of the brain, that occasionally attends an over dose, preceding every other bad symptom, and which has not hitherto been sufficiently noticed, though, if neglected, generally proves the precursor of convulsions and death.*

The more violent and ordinary effects of the medicine, are denoted by extreme nausea, or vomiting, dim and perverted vision, nervous tremors, cold sweats, with an utter prostration of arterial and general strength, the pulse sometimes slow, though as often quick, diminutive, and tremulous, and the whole accompanied by the utmost degree of indisable wretchedness. To afford relief in a case like this, we are called upon without delay, and the treatment consists of a blister over the stomach, or sinapisms to the extremities, and the freest use of the active stimulants, and cordials, as opium, volatile alkali, the tincture of cloves, and above all, strong brandy and water. Great reliance is also to be placed on opium, and where, on account of the state of the stomach, it cannot be retained, anodyne enemata may be substituted.†

NICOTIANA TABACUM.

To what I have said of this article, under the

* Blackall on Dropsies.

† Narcotics.

head of emetics, little remains for me to add. As a diuretic, it is, in some respects, similar to digitalis, though, undoubtedly, a very inferior medicine. Not many years ago, it was introduced by Dr. Fowler, with much commendation, as a remedy in dropsy, and, at the time, as is usual with new medicines, was strongly supported by the attestations of some other respectable practitioners. But its reputation has gradually been declining, and, at present, I suspect, it is very rarely prescribed in any of the cases of dropsical effusion. Of my own knowledge, I cannot speak relative to its properties in dropsy, having never prescribed it with such a view. Being so exceedingly unpleasant in its effects, we ought to have very unequivocal evidence in its favour, before we resort to it, in preference to other remedies of indisputable efficacy. To the utility of this article in the nephritic affections, the evidence is more pointed. I have elsewhere mentioned Mr. Earle's mode of treating retention of urine by it.* But, it would seem to be, in some of these cases, scarcely less serviceable when given internally. It is prepared for use, by infusing one ounce of the dried leaves in a pint of water, of which, the dose is fifteen or twenty drops, gradually augmenting it, till it amounts to three or four times this quantity.

* Emetics.

DISCOURSE XV.

Of Stimulating Diuretics.

MELOE VESICATORIUS,

VEL

LYTTA VESICATORIA.

THE Spanish fly is one of the very few medicines which we derive from the animal kingdom. Of the external use of the remedy I shall treat hereafter, under the head of blisters. Cantharides, in whatever manner applied to the body, evince a very decided affinity to the urinary and genital organs, and hence have been used in many of the diseases of these parts. But they are also a diffusible stimulant, increasing the celerity, and force of the circulation, and produce an universal glow over the body. Exhibited too largely, the effects are most distressing, such as great pain, heat, and thirst, denoting inflammation of the stomach and bowels, and a complete suppression of urine, or, if it passes away at all, it is stillatitiously, and bloody. The surface soon becomes cold, and the pulse loses all its force, sinking so much, indeed, as hardly to be perceptible.

Cantharides have sometimes been prescribed in tetanus and hydrophobia, with a view of exciting

strangury, under the expectation, that the counter-action, in this case, might be beneficial. But, though we have one or two cases recorded, of its having proved so in the former disease, not much confidence seems any longer to be reposed in the remedy. The same principle I have extended to the treatment of mania, in its weaker and more depressed forms, and have certainly, in some instances, experienced at least temporary advantage from it.

To promote, as well as to restrain, the urinary discharge, this medicine is employed. It would seem, at first, not a little extraordinary, that the same article should be capable of meeting such contra indications. As an attempt towards an explanation of it, I shall only observe, that the medicine seems to evince dissimilar effects, when used in opposite conditions of the system, and in different quantities. Exhibited in a state of excitement, or at any time, in small doses, it most commonly occasions strangury. But, taken in a reverse state of the system, or in large doses, it as constantly proves diuretic. Thus, in the weaker forms of dropsy, two, three, or four drachms of the tincture, given in divided doses during the twenty-four hours, will produce the most copious evacuations of urine. Never, indeed, have I witnessed more powerful effect in this way, from any remedy, than sometimes from cantharides, and to such cases of the disease. therefore, it appears to be adapted.

The fact which I have stated, does not rest entirely on my own observation. It is, on the contrary, corroborated by several very respectable authorities. But I must not conceal, that, by some of equal weight, very different representations have been made, of the properties of the article. Cullen, among others, seems to distrust altogether its diuretic powers, and to consider its operation as confined to the neck of the bladder. But he is surely incorrect in this view of the subject.

As I have before mentioned, cantharides are used in some of the cases of incontinence of urine, and here, they occasionally display their very best powers. They have, also, and especially within a few years, been very strongly recommended in gleet and leucorrhœa.* But, after a pretty fair trial in each of these complaints, I am not warranted to say much in favour of the remedy.

Cantharides may be given either in substance or tincture. The dose of the former to begin with, is about a grain, made into pill, and of the latter, ten or fifteen drops, except in reduced or phlegmatic states of the system, where it may be much more liberally prescribed.

TEREBINTHINA VENETA.

Of the terebinthinate medicines, still retained in practice, the Venice turpentine is the purest, and

* Robertson on Cantharides.

the one now chiefly employed. This is an exudation from a tree, the *pinus larix* of Linnæus. It comes to us a thick tenacious mass, of a pale yellow colour, having a pungent taste, and a very peculiar odour. By distillation it affords a large portion of essential oil, the *oleum terebinthinæ*, which is highly volatile and inflammable. The residuum constitutes the *resina alba, vel flava*, of the shops.

Of these three preparations, the first two only are prescribed internally, and the oil is preferred. It is a very pervading stimulant, directed specifically to the urinary organs. As a diuretic, however, it does not display much activity in dropsy, or, at least, my trials with it, in the atonic shapes of this complaint, have not been successful. Much more may be done with it in some of the nephritic affections, and I have, undoubtedly, seen it useful in the strangury from blisters, in gleet, and leucorrhœa. The dose of the concrete turpentine, is four or five grains, and of the oil, ten or fifteen drops, to be repeated once or twice a day. Exhibited much more largely, its diuretic effect is defeated, by the purging which it occasions. The resin is only used in the composition of unguents and plasters.*

BALSAMUM COPAIVÆ.

This is the exudation of a tree, called by Linnæus *copaifera officinalis*. Though, undoubtedly,

* Incitants.

operating very actively on the urinary passages, it has never claimed much attention in dropsy. But in some cases of nephritis, it is admitted to be highly serviceable, and has not been less beneficially employed in leucorrhœa and gleet. My conviction, however, is, that it is more particularly adapted to the early stages of gonorrhœa. Ever since I entered upon the exercise of my profession, I have trusted to the copaiva exclusively, in the management of this disease, and my confidence in its powers has increased, and is fully confirmed. This is no new practice. The medicine was long ago employed in gonorrhœa, though, in the final stages, when the inflammatory symptoms had subsided, and the doses were small and inefficient. My experience has taught me to pursue entirely a different course. Commencing with the medicine on the very accession of the disease, I am utterly regardless of all the appearances of inflammation, such as ardor, urinæ, chordee, &c. No remedy, indeed, is better calculated to relieve these very symptoms, than the copaiva itself. The proper dose is about forty drops, more or less, according to circumstances, to be repeated morning, noon, and night. It is conveniently taken dropped on a little wine, or mixed with milk. Thus administered, a cure is commonly effected in three or four days, and sometimes, even in a shorter period.

In the treatment of gonorrhœa, one caution, at least, should always be enjoined on patients who

are desirous of a speedy cure. It is, an entire abstinence from every heating article of food or drink, and a state of complete repose. Without low living and rest, this, and all other plans of managing the disease, are counteracting, and rendered comparatively of little use.

There are two circumstances which interfere with the exhibition of the copaiva, and detract from its utility. It sometimes purges, and when it does, its efficacy is lost or greatly diminished. We should here combine laudanum with it, which commonly checks this prejudicial tendency. But if it should not, the medicine must be discontinued for a few days, till the bowels recover their tone. To the stomach of some persons, the copaiva is also exceedingly offensive, so much so, indeed, that it cannot be retained. It is often very difficult to overcome this prejudice, as it is hardly possible to disguise the taste of the article. In my various endeavours to effect this purpose, I do not know that I have succeeded better than by one of the annexed prescriptions.*

On the use of the copaiva, I am thus precise in my instructions, because I do really conceive, that I am suggesting a very important practical improve-

* R. Bals. copaiv. sp. nit. dulc. āā $\overline{3}$ ss, sp. lavend. comp. $\overline{5}$ ii. tinct. theb. $\overline{3}$ i., pulv. gum. arab. $\overline{3}$ i., aq. fon. $\overline{5}$ i i m.

R Bals. copaiv. sp. nit. dulc āā $\overline{3}$ ss., album ovi, saach. alb. $\overline{5}$ i. ft. mist — de tinct. th b. $\overline{3}$ i a | fon. $\overline{5}$ ii. m. Of these mixtures, the dose is a table spoonful, three times a day,

ment, and one, perhaps, on which information cannot elsewhere be prescribed. No complaint, of so slight a nature, is so troublesome to the patient, or more vexatious to the practitioner, than gonorrhœa. Contrasted with the ordinary mode of treating it by injection, the plan which I propose has several advantages. It is more convenient to the patient. It produces no swelled testicle. It occasions no strictures. It leaves no gleet. It is more prompt and certain in the cure.

In what manner the copaiva operates in this case, I am not prepared to say. It does, indeed, seem, in some degree, an anomaly, that so heating and active a stimulant, should be salutary under such circumstances. Nothing, however, is more absurd, or leads to grosser fallacies, than speculations on the precise properties, or *modus operandi*, of medicines. Could any one suppose that turpentine, the most acrid, perhaps, of all the irritants, would allay the heat, sooth the pain, and arrest or subdue the inflammation of a burn?

It would appear, that the copaiva is distinguished in a very eminent degree, by the property of a specific relation to the genital and urinary organs, and to the whole of the neighbouring parts. This is evinced, independently of the facts which have already been mentioned, by the great relief which it affords in strangury from blisters, as well as in hæmorrhoidal tumors.

Notwithstanding, however, what I have said in

relation to the powers of the copaiva in gonorrhœa, we are not always to expect it to succeed in that disease. There is, perhaps, no medicine, which is so apt to be adulterated, or to be met with of an inferior quality. Where this happens, we shall uniformly be disappointed.

SCILLA MARITIMA.

I shall not repeat, here, what I have said in another place, of its natural history, and emetic properties. As a diuretic, the squill is, indisputably, the most certain, active, and useful article which we possess.

In every species of dropsy, it has been employed, and with the most signal success. Both in ascites and anasarca, it is eminently useful. But if I were to determine from my own experience, I should say, without hesitation, that it is still better adapted to hydrothorax.

In the practice of the Alms House, where the patients have, for the most part, those habits which produce effusions in the chest, I have had the most ample opportunities of making comparative experiments with this, and other medicines, in these cases, and, the result is altogether in favour of the squill. My mode of using it in hydrothorax, as well as in the other forms of dropsy, is, to combine it with calomel, in the proportion of three grains of the former, and one of the latter, to be made into a pill,

which may be given morning and night, or even oftener, if circumstances should urge its use.

Cullen disapproved of this combination, supposing that it would produce purging, which he thought interfered with the diuretic powers of the medicine, and, under the expectation of its being determined more directly to the kidneys, he prescribed it with the neutral salts. Being entirely hypothetical, his opinion here is entitled to no sort of confidence or respect. When the calomel purges unduly, which it will sometimes do, we may restrain it, by adding to the preparation a little opium. In the use of the mercury, the mouth becoming affected, is always an auspicious circumstance. I have observed, more especially in hydrothorax, that the distressing symptoms commonly subside on the appearance of ptyalism, and which is not altogether owing to the mercurial action, since mercury alone will not produce the same effect.

It was once a question a good deal debated, whether, in the exhibition of our medicine, its powers are increased or diminished by permitting it to produce vomiting, or other effects on the alimentary canal. By Home, then Professor of the *Materia Medica* at Ediuburgh, the affirmative side was assumed in this discussion. In dropsy, he gave of the squill and nitre, each ten grains daily, so as to excite vomiting, and at night supported the patient by means of cordials. Cullen, who was cotemporary in the same school, and between whom a great

rivalship existed. loudly condemned this practice. He, on the contrary, maintained, that the diuretic effect of the medicine is greatly abated, whenever it operates either as an emetic or purgative, and which he ascribed "to its being prevented entering the blood vessels, and thereby reaching the kidneys." By "a certain writer," says he, in another place, alluding to Home, "it is alleged, that the diuretic effect of the squill is not to be expected, unless it shews some operation on the stomach. This, perhaps, may be founded. But I understand it no other way, than that some operation on the stomach is a test, and a necessary test, of the squill's being in an active state, in the same manner as we are only certain, of the activity of the mercurial preparations, when they have shewn some effects on the mouth. I have often observed, that when the squill operates strongly on the stomach or intestines, that the diuretic effects were less ready to happen."

Like most other cases, truth lies, in this controversy, nearly between the extremes, and, in order to reach it, we must pursue a middle course, avoiding Seylla, as well as Charibdis. The point in dispute, is not whether emetics or purgatives are useful in dropsy, but, whether the peculiar powers of the squill, in these cases, are best attained by pushing the medicine to this extent. Determining from my own experience, which has been ample, I should say, without hesitation, that the just me-

dium, in the employment of the medicine, is a very slight and moderate degree of the nauseating effect. Nevertheless, this is not absolutely necessary to the successful operation of the medicine, as, in some cases, I have commanded its full effects, without having observed the slightest affection of the stomach.

COLCHICUM AUTUMNALE.

The meadow saffron, though not a native, is cultivated in our gardens, and succeeds well. It has a bulbous root, the only part of the plant that is medicinal. In its recent state, this is exceedingly acrid, and, on being cut into pieces, emits particles which irritate the eyes, and fancies, and even paralyse the fingers, for a time, with which it was held. Taken into the stomach, in so small a quantity as a grain, enveloped in some vehicle, it at once excites a sense of heat and thirst, with strangury, tormena, and tenesmus.

Notwithstanding, however, these violent effects, the baron Stoerk, with his characteristic intrepidity, resolved to make an application of the article to the cure of disease. Having first tried it on himself, he prescribed it freely, "in desperate hydropic, and other serous disorders," in which, as exhibited by him, it was always found to act "without disturbance, as a most potent diuretic, after the common medicines employed with that intention, had fail-

ed." As an oxymel, or syrup, he ascertained, that its harshness is mitigated, and his formula has since been generally adopted, and is contained in the dispensatories. Of this preparation, a drachm may be given two or three times a day, and gradually augmented to a much larger quantity.

Of the powers of the colchicum, I cannot say much myself, having rarely seen it used, and, indeed, I suspect that it never had, in any great degree, the confidence of the practitioners of Great Britain or this country. But on the continent of Europe, particularly in Germany and France, it has always been, and continues to be, in high repute, in dropsical effusions, in some of the complaints of the chest, as an expectorant, and in the treatment of intermittent fevers.

Within the last two or three years, a very general attention has been directed to this article, in consequence of its being supposed to constitute the basis of the *Eau Medicinale*, a nostrum, that has acquired immense celebrity, in the cure of gout and rheumatism.* The preparation of colchicum now

* The *Eau Medicinale* was invented nearly half a century ago, by M. Husson, a military officer in the service of France. It soon acquired great reputation on the continent of Europe, as a remedy in the arthritic affections, which it has ever since maintained, with little or no diminution. But, it is only within the last six or eight years, that it has attracted much attention in England or this country. As it comes to us, it is in small bottles, which hold about two drachms, and is a fluid of the colour of ale, with a nauseous bitter taste, and strongly scented of the Spanish wine, used as the menstruum. The whole contents of a bottle is recommended as a dose, though I have found it safer to give half this

in use, is a saturated vinous tincture, of which, from forty to sixty drops, are the proper dose, to be taken morning and night, and to have its operation encouraged by warm diluent drinks. Whether this tincture is substantially the *Eau Medicinale* or not, I will not take upon myself to determine. But, by

quantity. It is usually taken on going to bed, and its operation may be promoted by drinking warm beverages. After a few hours, the patient complains of nausea, which is sometimes followed by active vomiting, and copious evacuations of dark bilious matter by stool. To these, succeed a moderate diaphoresis, and ultimately, very powerful diuretic effects, which will continue for a succession of days.

During the operation of the medicine, the pain and swelling of the joints so rapidly subside, that it is not uncommon for the person to be at perfect ease in the morning, and to have, in a great degree, restored to him the use of his limbs. If the paroxysm should return, or not entirely go off, the dose is to be repeated.

As might be imagined, this medicine is very differently estimated by practitioners. While, by some, it is most highly extolled in gout, there are not wanting others, who condemn it as both useless and pernicious. Even by some of those who admit its immediate utility, it is dreaded lest it might eventually produce injury to the constitution, like the Portland powder, &c.

From my own experience, which, however, is not very extensive with it, I should be warranted in saying much in favour of the *Eau Medicinale*. I have seen it tried in five or six cases of gout of different forms, and always with signal advantage. In a paroxysm of podagra, the effects which I have witnessed, were nearly such as I have just described, with this difference, however, that long before nausea or purging commenced, there was, in every instance, a marked mitigation of pain, and a correspondent degree of composure, resembling, very nearly, the state induced by an anodyne. Twice I have given it in misplaced gout, attacking the stomach with great violence, and each time promptly afforded relief by it. Whether the repeated use of this medicine has any tendency to impair the tone of the system, and thereby aggravate the mischief which it is designed to remove, I have not sufficient experience to decide. The only fact which has come within my own knowledge, is

those whose experience with the two articles is more extensive than mine, their identity has been very confidently asserted. To this point, at least, we have some very strong evidence, that the colchicum has done a great deal of good in gout and rheumatism, even in the early and inflammatory stages of these diseases, and that, in all its leading effects, it very closely resembles the French medicine. Not much, however, is said in the new reports, relative to the colchicum, of its diuretic powers, or of its application, in this view, to the treatment of disease.

POLYGALA SENEGA.

Of the natural history of this plant, as well as of its general effects on the system, I shall hereafter treat.* At present, therefore, I will only remark, that it is a native of our country, and is one of the most diffusible of the stimulants, pervading every part of the body, and operating powerfully on most of the secretory organs.

against any such apprehension. There is a gentleman of this city, who, during the greater part of a long life, was the victim of gout, in its several forms, who, by recurring to small doses of Eau Medicinale, whenever admonished by any of the indications of an attack, has very successfully warded off a paroxysm for several years, and is now in a sound and vigorous state of health. Nevertheless, I do not recommend an imitation of this practice. My experience with the medicine is much too narrow, to speak in a tone of confidence, with regard to its applications.

The Eau Medicinale has also been supposed to consist of the nicotiana, the gratiola, the veratrum, the elatenum, &c. &c.

* Expectorants

The seneka has long been celebrated as a diuretic. This, indeed, is the only property of the medicine, which was particularly noticed when it was originally introduced into the practice of physic. But though I have used it much, I have never been able to see any extraordinary operation from it on the kidneys. Nevertheless, it is undoubtedly serviceable in dropsy. It has been employed in all the forms of this disease, and, if the most respectable writers are deserving of credit, it would seem, with distinguished success. We are informed, by Sir Francis Millman, that he cured six out of thirteen cases of ascites, by this medicine only. By Dr. Percival, it is highly commended, under the same circumstances, and likewise in hydrothorax, and Cullen, who seems not to have employed it himself, cites some authorities in its favour. The medicine, however, has lost much of its reputation in dropsy, and, I suspect, from its having been too indiscriminately used. Certainly no one, as yet, has pointed out, with any sort of precision, the species of the disease in which it is applicable, or prescribed any principle for its just administration.

From what I have observed of its use, as well as from my theoretical notions respecting its properties, I am inclined to believe, that it will be found most efficacious in those cases of universal dropsy, which depend on a very enfeebled absorption, and are connected with a general cachectic, or vitiated state of the system. It is only under such circum-

stances, that my own experience teaches me, that it is beneficial. The seneka, is a pervading stimulant, and, in its diffusive operation, often extends to the lymphatics, exciting these vessels to very invigorated efforts. Its efficacy here, may sometimes be promoted, by combining small quantities of calomel with it. This is easily done, by previously reducing it to powder, and forming it into pills: the proper dose of which is about a scruple, to be repeated several times in a day. I have, however, exhibited much more of it at a time.

LOBELIA SYPHILITICA.

This is an indigenous plant. The root, which is the only part used in medicine, consists of short white fibres, resembling tobacco in the taste, and if chewed, is apt, at first, to create nausea, and even vomiting. The lobelia had long been celebrated as an Indian remedy, for the cure of syphilis, till it was fairly tried, and found to be useless.* But its diuretic properties are fully confirmed, and it seems not at all unreasonable, to conjecture from this, that its reputation may have arisen in consequence of its doing good in gonorrhœa, which, from all that we can learn, is by far the most prevalent form of the venereal disease, among our aboriginal people.

The lobelia is employed, I understand, by some

* Pearson on the effects of various articles, &c. in the cure of Lues Venerea.

practitioners of the western country in dropsy, and not without success. I know nothing of it myself. But it is undoubtedly one of those native vegetables, which, on every account, ought to be carefully examined, and its properties accurately determined.

CHIMAPHILA UMBELLATA.

This is one of the plants common to the Old and New World. It is said to be found in several of the districts of Europe, in the south of Asia, and throughout the United States. Nothing appears, however, to have been accurately ascertained with respect to its medicinal properties, till very recently, though we have some reason to believe, that it has immemorially been employed as a diaphoretic, by our Indians, in their inflammatory diseases. It is called by them Pippissisewa, and is recognised in popular practice, where it has been long used also, for the same purposes, by the title of *rheumatism weed*. But it is, moreover, perfectly well known to the country people as an active diuretic, and is much resorted to by them in dropsies, and the affections of the urinary organs generally, being a remedy, too, on which they greatly rely to relieve their cattle of strangury. Nor, from recent intelligence, does it seem, that our northern Indians, at least, are unacquainted with its powers over the urinary discharge. In the year 1803, the properties of this plant were, probably for the first time,

investigated with any sort of care or precision and the credit of doing this, is due to Dr. Mitchell, a graduate of our university, who made it the subject of his inaugural dissertation. But, though he distinctly pointed out its medicinal virtues, as well as many of the cases of disease, to which it is applicable, the plant attracted little or no attention. Not long since, however, some account was given to the public, of the great powers of this article in dropsy, by Dr. Sommerville, of the British forces in Canada,* and from that time it seems to have become, among the London practitioners especially, a very favourite remedy in the disease. The late periodical journals of that country, contain some very strong attestations in favour of the article, and proceeding, too, from the highest medical authority, such as Farquhar, Satterly, Marcet, &c.

As yet, I apprehend, it has not been so much tried in the regular practice of the United States. It is creeping into use, in this city, and some very decisive evidence might be collected in support of the statement from abroad, of its efficacy. But, from what I can learn, it is quite as much prescribed elsewhere as a diaphoretic, and was particularly so in our late winter epidemic, the typhoid pneumonia, or spotted fever.

As a diuretic, the quality which most unquestionably gives it a place in the materia medica, the chi-

* London Medical Chirurgical Transactions, vol. v

maphila, is distinguished by activity and certainty of operation, and has this peculiarity, that while it stimulates the kidneys to a very increased effort, it acts on the stomach unequivocally as a tonic, and with so much effect, that it has been prescribed in intermittent fevers, and, as reported, not without success.

Whether the medicine is serviceable in correcting the lithic diathesis, an opinion of the late professor Barton, I am not prepared to assert from any new facts. Being, however, exceedingly analogous to the uva ursi, one of our best remedies under such circumstances, it is more than likely that it might be of advantage.

The chimaphila is directed in strong infusion of the entire plant, or in the shape of an extract, a pint or more of the former to be taken in the twenty-four hours, and of the latter, during the same period, one or two drachms, made into pills, or dissolved in water.

DISCOURSE XVI.

Of Lithontriptics, or Antilithics.

By a very natural transition, I pass from the diuretic remedies, to the consideration of the lithontriptics, or, as they have been more recently called, antilithics. They constitute a class of medicines, which was once supposed to break down or dissolve the stone, and now are more generally held to be correctives only of the lithic diathesis. Each of these terms appears to me to be appropriate, and ought to be retained. We require a name for the set of medicines which exists, or is supposed may exist, as solvents of the stone, and not less, some appellative designation of such as prevent, or correct the tendency of the system to the calculus formation.

What occasions the lithic diathesis, is not distinctly understood. Its connection with gout is obvious, and the latter is seemingly dependent, in a great degree, on a weakened or disordered stomach. Certain habits and peculiar modes of living, the sedentary occupations of the studious, the indulgencies of the voluptuous, or the excesses of the still more intemperate, are found alike to be the sources of the two diseases.

Yet, by this analogy, we do not add much to our knowledge, the origin of the one, as well as of the

other complaint, being shrouded in obscurity. To me, however, it is manifest, that the first link of the series of actions, which cause these two formidable maladies, the scourge of our nature, and, in some degree, the reproach of our art, has its commencement in the stomach.

It is, indeed, now, very generally presumed, that gout is owing to a peculiar matter, originating in a vitiated state of the digestive process, and the hypothesis is not, by any means, gratuitous or unsupported. Nor, perhaps, is it less true, that this same matter, taken up, and ultimately thrown into the bladder, constitutes the foundation of gravel and stone. There are a variety of reasons for this conjecture, and among others which might be mentioned, is, the perfect identity of the arthritic concretions and urinary calculi, as relates to composition. After reaching the urinary organs, all which seems necessary to the formation of stone, is some nucleus, and which is usually supplied by a deposition of animal mucus, or particles of sand, or drops of extravasated blood, or, in short, by any extraneous matter, and around which an accretion takes place with greater or less rapidity, according to the tendencies of the constitution.

Chemistry had no sooner made its way into medicine, than it began to exercise its ingenuity in devising theories to explain more precisely the origin of the urinary concretions. But, even its extraordinary resources have been baffled by the difficulty

of the subject. Nevertheless, chemical analysis has ascertained, pretty accurately, the substances which enter into the composition of calculi, and pointed out to us the agents, which operate upon them most powerfully, at least out of the body. The substances hitherto discovered, are the following:

- | | |
|--|-----------------------|
| 1. Uric acid, | 6. Magnesia. |
| 2. Phosphate of lime, | 7. Phosphate of iron. |
| 3. Phosphate of mag-
nesia and ammonia, | 8. Silica, |
| 4. Oxalate of lime, | 9. Urea, |
| 5. Muriate of ammo-
nia, | 10. Cystic oxid, |
| | 11. Mucus. |

These elementary parts of urinary calculi, exist in different combinations, which have been variously arranged. The classification of Dr. Wollaston is, perhaps, the best, and certainly, in a practical point of view, deserves a preference. Calculi he divides into four kinds :

1. Uric calculi—composed of uric acid, or chiefly of that substance.

2. Fusible calculi—composed chiefly of phosphate of lime, and phosphate of magnesia and ammonia.

3. Mulberry calculi—composed of oxalate of lime.

4. Bone-earth calculi—composed chiefly of phosphate of lime.

Endeavours have been repeatedly made with the

view of discovering solvents for these several productions. The enquiry, which, for some time, was neglected, has recently been renewed by the French chemists, and, as I have already remarked, not wholly without success. These experiments were instituted, expressly for the purpose of shewing the practicability of dissolving stones in the bladder, by injections through the urethra. The result most incontestibly proves,

1. That a solution of pure potash and soda, so weak that it may be kept in the mouth, and even swallowed, without pain, soon dissolves calculi composed of uric acid, and of urate of ammonia, provided they be kept plunged in it.

2. The phosphates are quickly dissolved by nitric or muriatic acid, so weak that it may be swallowed without inconvenience, and possessed of no greater acidness than urine itself.

3. Calculi composed of the oxalate of lime, are slowly dissolved by nitric acid, or by carbonate of potash or soda, weak enough not to irritate the bladder.

It has been contended, that these solvents, injected into the bladder, ought to act upon the stone, and gradually dissolve it, nor do I perceive any reason why they should not, though the few attempts which have been made, do not afford us much encouragement. But, may not this be owing to their not having been conducted with all the care which the case requires? To succeed in experi-

ments of this sort, much skill and perseverance will be necessary. As yet, I do not know whether any practical advantages have been derived from these theoretical suggestions. They are, however, worthy of a fair and ample trial.

The fact of the different species of calculi being so readily soluble out of the body, should also incite us to further and most assiduous exertions, to detect some agent which might produce the same effect in the bladder. Whether we, at present possess such a solvent, is extremely problematical, though cases have sometimes been recorded where a stone has disappeared under the use of lithontriptics. The older writers abound in statements of this description, and we are not deficient in more recent and authentic evidence to the same point. Even within my own knowledge, facts to this purport have occurred. But still, it is not clearly ascertained, whether this effect is to be imputed to the medicine, or to the spontaneous operations of nature. My impression is, from a review of the whole ground, that certain articles have occasionally displayed this valuable property, still the practice, under these circumstances, must be very ambiguous and precarious.

Of the many difficulties incident to the case, not the least is to determine the composition of the existing stone, in order to select the appropriate solvent. As we have no precise mode of doing this, we shall be compelled to practise empirically, ex-

perimenting with one and another substance, without rule, or principle, till we hit upon some one, which may answer the purpose.

The opinion which I have expressed, of the possibility of dissolving a stone in the bladder by a course of medicine, rests upon two grounds :

1. That, by experiments already referred to, it appears, that we possess solvents for almost every species of calculi, out of the body, which might be given in a sufficient quantity to effect the end, without any prejudice to the system.

2. That some of these solvents do reach the urinary bladder without any, or, at least, a material change being wrought in their properties, so that, when coming in contact with the stone, there might be a play of chemical affinities, and thereby a decomposition of the calculous body. My present view of the subject is perfectly consistent with the doctrine which I delivered in the early part of these discourses, that no substance enters the circulation, with a retention of its original powers. To me it is still most manifest, that the process of the assimilation, whether performed by the chylopoietic viscera, or by any part of the absorbent apparatus, completely animalizes all articles subjected to its influence, and, however various in their composition, reduces them to one homogeneous fluid, bland in its nature, and fit for the purpose of nutrition. But, in the secretions or excretions being removed beyond the sphere of the vital powers, chemical ac-

tion takes place, by which those substances are, in part, or entirely regenerated.

Besides, it would seem, that there is really a direct communication between the stomach and bladder, through which substances are conveyed without undergoing the slightest change. The fact, of a rapid transmission of certain fluids to the urinary organs had, long ago, led to the suspicion of such a passage. Every physician was aware, that nitre, rhubarb, turpentine, and garlic, may be detected in the urine twenty or thirty minutes after they have been taken into the stomach, a time much too short, to believe that they reached that destination through the ordinary route of the blood vessels. It was supposed by Darwin, that the transmission takes place, in these cases, in consequence of the retrograde action of the absorbents. But this is surely a very lame and imperfect solution of the problem. Even admitting, that the lymphatics do occasionally perform this inverted office, which, from their valvular structure, is rendered next to impossible, it is obviously the effect of disease, and it is contrary to all the rules of medical philosophizing, to resort to an irregular and morbid process, to account for the phenomena of an uniform and healthy function. But, whatever may be the precise mode of this more direct communication between the stomach and bladder, of the fact, there cannot now be much doubt. It has been long known, that in some cases, where the kidneys were nearly destroyed by the

ravages of disease, the bladder was filled, as usual, I will not say with urine, because this is a peculiar fluid, the result of a secretory action of the kidneys. By tying the ureters in the dog, it has also been found, that the discharge from the bladder, though diminished, is not entirely suspended. These facts I state on the authority of Darwin. The experiments, however, which have been more recently made by Mr. Home of London, are of a character still more conclusive and satisfactory. With a view of determining this point, he placed a ligature round the pylorus of the stomach of a dog, which had been previously evacuated thoroughly, and, afterwards introducing fluids into it, coloured by rhubarb, he detected this substance in thirty minutes in the urine, a time infinitely too short, to allow of its being transmitted through the regular rout of the circulation. These experiments he repeated so frequently, and under circumstances apparently of such precision, as to leave little hesitation as to their truth and accuracy. By what precise means this intercourse between the stomach and bladder is maintained, it is impossible, at present, to decide. It is highly probable, that it is done by an inosculation of the lymphatics of these two organs, though, it must be confessed, that no such connection has hitherto been demonstrated. Yet, so imperfect is our knowledge of the absorbent system, that the hypothesis, on this account alone, ought not to be discredited.

Notwithstanding all I have said, I shall not, however, insist upon the absolute solvent powers of any substance, with which we are at present acquainted. It has always appeared to me, that our knowledge respecting the lithontriptic medicines, is exceedingly imperfect, very vaguely stated for the most part, and mixed with, and disfigured by, a vast deal of credulity and empiricism. Enough, however, is ascertained, in relation to this class of remedies, to warrant us to persevere in our trials, not only with those which we already possess, but also with new and untried substances. Even admitting, that we neither have, nor never shall have, a real lithontriptic, it must still be conceded, that there are now in our possession, and no doubt, others remain to be discovered. many articles which are eminently useful in mitigating the pain, or arresting the growth of calculus, not to mention the vast number of gravelly and nephritic affections, in which such medicines are so peculiarly serviceable.

Of Particular Lithontriptics.

Of the substances which are supposed to possess such properties, the carbonic acid, or fixed air, is one of the most conspicuous, and longest known. Its utility, however. in calculous complaints, was not very satisfactorily illustrated, or the mode of its administration pointed out, till the appearance of the work of Dr. Dobson on the subject, about thirty-five or forty years ago. The remedy soon after

attracted general attention, and we find both Dr. Saunders and Percival, very strenuously insisting, to use the language of one of those writers, "for the solubility of the human calculi, while yet in the bladder, by the regular and continued use of fixed air."

It was now proved, as had been previously suggested by Dr. Hales, that calculi immersed in malt liquor, or in water impregnated with carbonic acid, are, by virtue of this principle, gradually diminished in bulk, till, finally, they undergo a complete solution. These experiments were made by Drs. Saunders, Percival, and Falconer.

The next point to be determined, was, whether this fluid taken into the stomach, could be so conveyed, as to enter the bladder unchanged, the practicability of which, was also speedily demonstrated. We are informed by Dr. Percival, that a patient of his, while under a course of the fixed air, which he took daily, in very large quantities, had his urine strongly impregnated with it, as appeared by the precipitation it produced in lime water, by the bubbles it copiously emitted when placed under the receiver of the air pump, and by the solution of several urinary stones immersed in it. This fact, which is so strong in itself, has since been fully corroborated, by a series of experiments conducted by the celebrated Dr. Priestley.

It, moreover, appears, on the authority of several respectable writers, that when human calculi are

placed in the waters of Pyrmont and Spa, which contain the carbonic acid, they are dissolved, and, that the urine of the persons drinking these waters, has the same effect.

As respects the utility of carbonic acid, in cases of stone, I can say little from my own personal observations. It would, however, be an unjustifiable degree of scepticism, to doubt its occasional efficacy. I do not mean as a solvent, for, in this view, it is altogether questionable, but as a palliative remedy.

In gravel, and a variety of nephritic affections, I have certainly used it with some advantage. It has been given by me in the form of seltzer water, an exceedingly pleasant beverage, which is readily taken, in any quantity, by the patient, and I suspect is quite as good as any other mode.

FIXED ALKALIS.

The idea of calculus having its origin in an acid, has led to the very common employment of the alkalis, as solvents or correctives, in stone, and also, in almost every modification of urinary disease. This, which, by some, is supposed to be a modern practice, is not so. Consulting the writers at the commencement of the last century, I find the alkalis recommended in these very cases. In Robinson's Treatise on the Gout, which appeared in the year 1721, the salt of tartar is expressly suggested among other things, as a solvent for the stone. At a period somewhat later, these medicines are particu-

larly noticed in the works of Hartly, Whytt, Kirkpatrick, De Haen, and other medical writers of distinction. But, notwithstanding all this weight of recommendation, the alkalis were certainly laid aside, and, for a long time, had lost nearly all their reputation in such cases. It was not, indeed, till about thirty years ago, that they were revived, and once more introduced into the treatment of calculous complaints. Experience has subsequently confirmed, in a great measure, the virtues of the medicine.

The fixed alkalis are prescribed both in the mild and caustic state, according to the object in view. If the solution of the stone be intended, the pure alkali is used, in the dose of fifteen or twenty drops of the aqua potassæ, morning and evening, increasing it gradually, as far as the stomach will allow. It is, however, very apt, after a short time, to produce gastric distress, which may, in some degree, be obviated, by combining it with mucilage, and still more, by taking it in soup, or other gelatinous matter. But, under the best management, it cannot be very long continued, owing to the nausea, and even vomiting which it excites. On this account, the vegetable alkali is more commonly directed, in the state of a carbonate, or super carbonate, as a palliative only, and here it operates by merely neutralising the lithic acid, thereby preventing the further increase of the stone. Thirty or forty grains of the salt of tartar, in some diluent drink, to be repeated

several times in the twenty four hours, is one mode of exhibiting the medicine. But, a super saturation of it with carbonic acid, constituting the *aqua mephitica*, or the aerated alkaline water, as it is called, prepared by a well known apparatus, is more frequently prescribed, and, perhaps, has greater efficacy. As this, there are, indeed, very few remedies which afford so much relief, at least, in the nephritic affections, especially when drank to the amount of two or three pints in the course of the day. But where this cannot be had, a tolerable substitute is afforded in the common effervescent draught, very frequently repeated.

As a lithontriptic, or, at least, as a corrective in calculous affections, the carbonate of soda, is found to be not less advantageous, the pure alkali very rarely, if at all, being used. It is given in solution, in the proportion of a drachm, or more, to a quart of water, of which the whole may be drank in divided quantities, in a day, or it may be prepared exactly as is the super carbonate of potash. It is sometimes directed in pills. The salt is, for this purpose, previously exposed to a very gentle heat, till it loses the water of crystallization, and the dry powder thus obtained, is worked up with mucilage.

Each of the alkalis has, moreover, been much used in the form of soap. It is, of course, the purer soaps that are prescribed, such as are made with the mild expressed oils, of which an ounce may be taken daily, in pills or otherwise. But an object.

tion of some force has lately been raised against the employment of the alkalis, in any shape, in stone. It is alleged, that the phosphates of lime and magnesia, which exist in the urine, are retained in solution, principally by its excess of acid, and if, therefore, for the purpose of dissolving a uric acid calculus, or preventing its growth, alkalis be given so as to neutralize this acid, the deposition of these phosphates may be favoured, and a layer of them form on the existing stone.* Chemically, all this may be true, and no doubt does occasionally happen, but, the calculous productions in the bladder, are not limited exclusively to this particular composition, and the experience of every practical man has shewn, that this set of articles is highly beneficial in many cases of this complaint, and must not too hastily be laid aside.†

AQUA CALCIS.

As closely allied to the alkalis, the lime water has been used for similar purposes. If it be not a solvent, as has been suspected, it is, most unques-

* Murray's Mat. Med.

† *Incompatible substances*, as regards both the vegetable and mineral alkalis.—Acids and acidulous salts, borax, muriate and acetate of ammonia, alum, muriate of lime, sulphate of magnesia, lime water, nitrate of silver, ammoniated copper, muriate of iron, acetate, submuriate and oxymuriate of mercury, super acetate of lead, tartarized iron, tartarized antimony, sulphates of zinc, copper and iron.

tionably, one of the best palliatives of the pain and distress of the calculous affections. It will not only relieve the sufferings from the stone, at the moment, but, in some instances, suspends them for a considerable length of time. There is a case precisely of this kind, related by De Haen, of a man who drank eight hundred quarts of the lime water in six months, who, in consequence, continued exempt from pain for three years, though the stone still remained in his bladder.

To be decidedly useful where there is a stone, the aqua calcis should be given in very considerable quantities, otherwise little or no effect is produced by it. I presume that not less than a quart daily would answer the purpose. In gravel, and other milder affections, much less, however, will do. I generally direct, in these cases, about a wine glass full, five or six times a day, mixed with an equal proportion of new milk. Exhibited in this way, it is far more pleasant, and agrees better with the stomach.

In all the cases of nephritis, whether proceeding from gravel, or other causes, which are accompanied with much disorder of the stomach, as gastralgia, sour eructations, flatulence, and nausea, the lime water, I have found, extremely useful. It is, perhaps, on the same principle, that it proves so beneficial in diabetes, a disease, which, undoubtedly commences in some wrong action in the stomach.

If lime water ever proves a solvent, it can only be by acting on the albuminous matter, which serves as a cement to the different strata, or particles of all urinary calculi. That out of the body, it has the power of destroying the cohesion in this case, has been shewn by more than one experimentalist. But it is said, that it ought to be given in combination with an alkali, to neutralize the excess of acid in the urine, otherwise it would unite with the lime, and render it wholly inert, a process, I fear, not to be very easily adjusted, in actual practice, though this is substantially the composition of Stephen's medicine, which acquired so much celebrity as a solvent of the stone, that the English parliament was induced to purchase the secret of preparing it, at an enormous price.*

MINERAL ACIDS.

Nothing can illustrate, more strikingly, the difference in the composition of urinary calculi, than that remedies so directly the reverse of each other as the alkalis and acids, should be serviceable in the same set of affections. The muriatic, as well as the nitrous acid, has of late acquired not a little reputation in Europe, as lithontriptics. It is now

* *Incompatible substances.*—All alkaline and metallic salts, phosphates, borates, tartrates and citrates, acids, sulphur, spirituous preparations, the infusions of orange peel, colmubo, cinchona, rhubarb, senna, and all vegetable astringents.

about six or seven years, since some cases were recorded in the periodical journals, of the efficacy of the muriatic acid especially. But, still more recently, Mr. Copeland, a surgeon of London, has called the attention of practitioners to both of these acids, and, from comparative trials, is led to believe, that the nitrous, as a solvent, has the superior powers.

Two cases are stated by him, in which a solution of the stone, according to his account, certainly took place. In the first, thirty drops of the muriatic acid were taken in water, three times a day, the dose being gradually increased to fifty drops, and continued till two ounces were consumed, when the complaint was removed. The patient was directed to collect daily in one vessel, all the urine of the twenty-four hours. The clear urine was then poured off, and the sediment collected upon a paper filtre. The sediment thus collected, amounted to one hundred and four grains, of a buff-coloured impalpable powder.*

In the second case, forty drops of the diluted nitrous acid were taken in water, every two hours,

* One hundred grains of this powder, subjected to chemical analysis, was found to contain,

Uric acid	72 grs.
Ammonia	18
Carb. of lime	3
Phosp. of lime	5
Loss	2
	<hr/>
	100

till a sediment appeared in the urine, and afterwards continued four times a day. By persevering with the medicine, for nearly five months, during which time twenty-seven ounces of the diluted acid were consumed, six hundred grains of a thick light coloured powder were collected, in which, towards the conclusion, a few fragments of calculus were found, partially decomposed.* In the treatment of these cases, opium was occasionally ordered, to mitigate the pain. Costiveness was prevented by mild laxatives, and the stomach, when oppressed by the frequent doses of the acid, was relieved by taking spirit and water. It appears, from Mr. Copeland's observations, that the nitrous acid, in many other instances of lithiasis, procured a discharge of sediment with the urine, and an alleviation, more or less of the symptoms.

As in the case of alkalis, an objection has been started to the use of the acids, in calculus. It is said, that if the stone consists chiefly of phosphate of ammonia and magnesia, instead of producing a solution of it by the introduction of acids, we should occasion a deposition of uric acid. But, in all

* One hundred grains of this sediment, subjected to analysis, gave

Uric acid	80 grs.
Ammonia	11
Carb. of lime	2
Phosp. of lime	1
Loss	6
	<hr/>
	100

these cases, we must attend to the state of the urine, endeavour to ascertain its constitution, and the influence of the remedies upon it, as well as their effects on the comfort of the patient, and to suspend, or vary them accordingly.

DISCOURSE XVII.

The Subject Continued.

As yet, I have treated only of lithontriptics, or those medicines which possess, or rather, are supposed to be possessed of solvent powers. But, as I have already remarked, there is another section of this class, which may, with more propriety, be called antilithics, as correctives of the lithic diathesis, or the mere palliatives of calculous affections. All the bitters and astringents, are, I suspect, without an exception, more or less of this description, though it is more conspicuously the case with gentian, quassia, centaury, chamomile, the hop, and especially the uva ursi. It is also affirmed, that the common tea is endued, in a very great degree, with this property, so much so, indeed, that in China, where the article is so copiously consumed, it appears that calculous affections are wholly unknown.

The employment of astringents, under such circumstances, is a very ancient practice, and which seems to have prevailed at all subsequent times. By some, it has been presumed, that several, or the whole, of the class of remedies of which I am speaking, have the property of dissolving the stone. But it is now pretty clearly ascertained, that they have no such power, and that the symptoms in-

duced by a stone may be relieved, while it continues in the bladder. Their *modus operandi*, in these cases, is not distinctly understood. It was conjectured, by Cullen, and, I think, very absurdly, that they operate by absorbing the acid which is evolved in the stomach. To me it appears infinitely more probable, that they act only by restoring the healthy tone and condition of the digestive process, and thereby hinder the generation of uric acid, the further deposition of which being thus arrested, the asperities of the existing stone are gradually worn off, or, perhaps, as sometimes happens, it becomes imbedded in a cyst of the bladder, and in this way, the pain from irritation is diminished, or entirely removed.

Of all the astringents, the *uva ursi*, or the *arbutus uva ursi*, as it is called by the botanists, is the most valuable in these cases. This is a plant found both in Europe and this country, and is a low shrub, somewhat resembling the myrtle, growing in all the northern states, and plentifully not far from this city. It is also known by the provincial names of bear berry, bear's whortle berry, wild cranberry, &c.

The *uva ursi* is an ancient medicine. It was employed even so early as the time of Galen, mostly, however, as a simple diuretic, nothing of its other properties being ascertained, especially its antilithic properties, till some few years ago. It is now very much prescribed in all calculous affec-

tions, and, if it be not a solvent of the stone, it at least mitigates the symptoms of this painful disease, and promotes a freer discharge of urine. My impression, however, is, that it is more particularly adapted to nephritis, in all the forms of which, I have prescribed it, and with very great advantage. It is an exceedingly popular remedy in this city, and has the confidence of many of our most respectable practitioners. From my own, as well as from the practice of my medical friends, I could adduce a variety of examples, of the successful treatment of nephritis, by this medicine. These cases, however, I shall not detail, as the uva ursi does not require much precision in its use. Being without any very positive action, and especially on the blood vessels, it may be exhibited in almost every state of the system, and in every variety of the diseases of the urinary organs. To the great efficacy of the uva ursi in these cases, we have the testimony of Ferriar, very strongly stated. "I have," says he, "given this medicine in a considerable number of nephritic cases, in very moderate doses, and always with manifest advantage. When the pain is very acute, and the pulse quick, I begin the cure with bleeding, and a gentle purgative, composed of manna and a neutral salt. This purgative I repeat twice a week, and on the intermediate days, direct the patient to take five grains of the uva ursi, and half a grain of opium, three or four times a day, according to the urgency of the symptoms. I have

never found larger doses necessary. This method always relieves, and generally effects a cure. Of sixteen patients, treated in this manner, I have discharged twelve, cured. In reckoning the cures, I do not rest on the cessation of a single fit, but require a permanent relief from pain. Many of my patients have used the remedy for several months together, before this end was attained. The fits became slighter, and at length ceased."

Besides the preceding affections, the *uva ursi* has been highly extolled in several other complaints of the urinary organs. By De Haen, to whom we are indebted for much of our knowledge of this remedy, it is most favourably spoken of in ulceration of the kidneys, the bladder, and their appendages. *Catarrhus vesicæ*. I have seen very successfully managed by it, and the strangury from blisters not less so. But in the former complaint, its use ought generally to be preceded by those remedies, which are more directly calculated to subdue inflammatory action, a state, of which, it always partakes in the commencement.

In leucorrhœa, as well as gonorrhœa, of long standing, our medicine has been very strenuously recommended. But I have tried it in all these affections, and I cannot say, that I was much encouraged by the results. Leucorrhœa is a most unmanageable complaint, in very many instances. It consists, for the most part, of a vitiation of the catamenial secretion, which, in this case,

is very difficult to rectify, or restore to its healthy condition. Not less, perhaps, has the *uva ursi* been prescribed in menorrhagia, under the impression of its great astringency. My own experience will not permit me to speak very favourably of any one of these applications of the article, still I cannot doubt of its occasional utility, after what has been affirmed by several respectable writers. The medicine is, on every account, well worthy of a trial in these disorders. It appears, from its general properties, to be admirably suited to them, and we have abundant authority for its having actually done good. But I repeat, that I myself have been, in a great measure, disappointed in the experiments which, as yet, I have made with it.

Every one who has tried the *uva ursi* in diabetes, seems to have been pleased with its effects. It is now very much used, both in Europe and this country, and the few cases of the disease which have come under my care, were treated partly by it, and successfully. Yet, diabetes can very rarely be cured by any one remedy. It mostly presents a case exceedingly complicated in its nature, often highly febrile, and exacting copious venesection, and purging, as preliminary measures. After the system is brought down to the point where tonics are proper, then the *uva ursi* may be resorted to with advantage, and not before. The annexed description is that of Ferriar, which has generally

been adopted, and is certainly a good one.* The uva ursi, in this case, I have reason to believe, operates very much as a tonic to the stomach, though, by virtue of its affinity to the kidneys, it may, at the same time, do away, or mitigate the irritation of these organs. That it is beneficial in the first view which I have exhibited of its properties, I am satisfied, from having very frequently witnessed its great efficacy in the ordinary forms of dyspepsia, and especially, when the disease can be traced to a relaxed state of the stomach.

The uva ursi, on the whole, is undoubtedly an article possessed of very valuable properties, and which has, in every view, very strong claims to our attention. Of this medicine, the average dose, in every case, to which it may be applicable, is about twenty grains of the powder of the leaves only, three times a day, to be gradually increased. Double this quantity, however, is sometimes prescribed. It is also given in the shape of infusion and decoction. Thus prepared, it answers very well, though I prefer the form of powder, as being, on the whole, more certain, and, perhaps, less disagreeable to the taste.†

HUMULUS LUPULUS.

The hop is too well known, to require any description. Nor do I mean, at present, to detail its

* ℞ Pulv. uva urs., cort Peruv āā ℥i., opii. gr. ss. quarter in die. bibat aq. cal. ℥ii. post sing. dos. pulver.

† Astringents.

general medicinal properties, or enter into the enquiry, how far calculous affections have been influenced by the increased consumption of malt liquors.

As a lithontriptic, the infusion of hop has long been celebrated. We are told by Lobb, in his *Practice of Physic*, that, out of the body, it is one of the most prompt and certain of the solvents of urinary calculi, and that, when given internally, it affords much relief.

My experience with the hop, is confined to nephritis only, where it has sometimes proved very efficacious. Exhibited in a strong infusion, to the extent of a pint or more a day, it lulls pain, excites the urinary evacuation, and after a while, in some instances, effects a cure. The tincture of the hop, which is preferred by some practitioners, is far less efficacious, and appears, indeed, to be wholly unadapted to these cases.*

DAUCUS CAROTA.

This species of carrot grows wild in many parts of the United States, and most abundantly in the vicinity of this city. It was stated, by the late professor Barton, to be the same as the common garden vegetable, changed somewhat by the want of cultivation. But, it would seem, that he was deceived. The wild, is certainly the more powerful of the two plants, though the domesticated is by no means inactive. Throughout the country, this is a

* Narcotics.

remedy much employed in all the urinary complaints, and, I suspect, that confidence is not misplaced in it. I have used it in several of these affections with great advantage, and particularly in gravel.

As a diuretic, it is very certain and active. Exhibited merely to promote the urinary secretion, we shall rarely be disappointed, and, perhaps, it ought to be placed with that assortment of medicines. It is one of our best means of relieving the strangury from blisters. An infusion either of the root or seed, is used, though the latter is preferred, and may be drank as freely almost as any other herb tea.

ALLIUM SATIVUM.

The alliaceæ, or, at least, some of these articles, have undoubtedly been productive of utility in calculous affections. The *allium sativum*, or the common garlic, is the most powerful of the class. From the circumstance of its reaching the urine in unchanged a state, we should suspect a priori, that it operates pretty actively on the urinary organs. This suspicion has been fully verified by experience. It is a highly stimulating diuretic, and, in atony of the kidneys and bladder, has proved very serviceable.

By Sydenham, as well as by more modern writers, it is much commended in dropsy. It was, likewise, formerly, resorted to as a lithontriptic,

and, indeed, in ancient times, was a very favourite remedy in calculous affections. From some cause, however, it lost all its reputation in these cases and for a century we scarcely find it mentioned, in reference to its lithontriptic virtues. But of late, it is again creeping into practice, and, if we can credit the accounts which we have published, it is undoubtedly entitled to our notice. When I was in Europe, it was employed in the London hospitals. I do not, however, remember any very decided effects from it.

It may be given either in substance, by cutting the cloves into pieces of a convenient size to be swallowed, or the juice may be extracted by pressure, and exhibited. The leek is said to be equally useful, and may be administered precisely in the same manner.

MAGNESIA.

In the course of the last few years, not a little has been said of the value of magnesia, in calculous affections. To Mr. Brande, one of the most enterprising of the European experimentalists, we owe the credit of this discovery. Denying the lithontriptic power of any substance with which we are at present acquainted, he was induced to institute an enquiry, with a view of ascertaining some means of preventing the formation of uric acid in the bladder. Comparative trials with the alkalis

and magnesia, satisfied him of the decidedly superior efficacy of the latter article in this case, and the practice which he deduces from it, is illustrated by four cases. These I will present, in a very abridged form, as the remedy is a new one, to serve, in some degree, as a guide to its use.

The first is that of a gentleman sixty years of age, who had been in the habit of indulging in the free use of acid liquors, and who repeatedly passed small calculi, entirely composed of uric acid. Of the subcarbonates of soda and potash, he freely took without effect. Next the magnesia was directed, in the dose of fifteen grains, three times a day, in an ounce and a half of the infusion of gentian. After a week, the uric acid was found, by examining the urine, to have greatly diminished, and in a short time nearly disappeared. The magnesia, however, was persevered in for eight months longer, and ultimately a cure may be considered as having been effected.

The second case, is that of a gentleman about forty years ago, who occasionally voided considerable quantities of uric acid, in the form of red sand, and once passed a small calculus. His urine was generally more or less turbid, and, after taking any thing which disagreed with his stomach, even in a slight degree, the red sand often made its appearance. Twenty grains of magnesia, in a little lime water, every night and morning, were pre-

scribed for him, which, by continuing for six weeks uninterruptedly, he perfectly recovered.

The third case, is that of a gentleman forty-three years of age, who, after violent exercise on horse-back, was attacked with pain in the right kidney and ureter, and in the course of the night, discharged a small uric calculus. His urine was turbid, and deposited red sand. To relieve these symptoms, twenty grains of Magnesia were ordered every night. The result was, a speedy cure.

The fourth case, is that of a gouty person, aged fifty-six, whose urine constantly contained a large portion of mucus and red sand. His stomach was weak, and he often complained of heartburn, and pain in the neighbourhood of the right kidney. The alkalis and some other remedies having failed, he was put upon twenty grains of magnesia; three times a day, mixed with water, which, however, affecting his bowels, one powder was omitted, and five drops of laudanum were added to each of the other doses. Continuing this plan of treatment for six weeks, the urine became less loaded, and there was a longer escape from a paroxysm of gout, than for the six preceding years.

It appears, from the cases which I have detailed, that while magnesia is a remedy singularly well adapted to nephritis calculosa, or gravel, it will, most probably, render little service in stone. Experience has taught us, that there is, in some instances, a very material difference in the two com-

plaints. The red sediment of urine, is simply the uric acid. and is most usually met with in gouty and dyspeptic persons, somewhat advanced in life. Children, on the contrary, are most subject to stone, the composition of which, is, for the most part, the triple phosphate of ammonia and magnesia, sometimes combined with the phosphate of lime, on which magnesia will not at all act. Nevertheless, even limiting its utility to gravel, it is still a very important accession to our stock of remedies, for surely there is no case more painful, or which oftener proves difficult of management, than these affections.

In dismissing this subject, I shall only further remark, that the arrangement of the preceding articles, under the separate heads of diuretics and antilithics, is arbitrary, and, perhaps, unnecessary. Excepting the magnesia, the lime water, and, probably, some of the bitters, all these medicines are possessed of nearly the same properties, and are equally appropriate to the affections of the urinary organs.

DISCOURSE XVIII.

Diaphoretics.

NEXT I am to treat of those means which produce a discharge from the surface of the body. These constitute a very important class of remedies, and one which is applicable to the management of an extensive circle of diseases. In the common language of the schools, the term diaphoretic, is restricted to those articles only, which promote the insensible perspiration, and such as occasion sweating, are distinguished by the appellation of sudorifics. But, as in the medicines arranged under these titles, we can discern no difference, except in the degree of force, or what arises from the manner of administration, I shall comprehend the whole under the head of diaphoretics.

As the discharge from the skin is merely an increase of a natural secretion, it is plain, that this may take place by an invigorated action of the cutaneous vessels, produced, either by the direct application of stimulants to them, or by augmenting the general force of the circulation. Diaphoresis, however, is not the constant and necessary consequence of increasing the energies of the heart and arteries, as there often exists a constriction of the extreme vessels, which counteracts the natural tendency to per-

spiration. To produce sweating, under such circumstances, something is required to overcome this resistance, and which is most effectually accomplished by inducing a state, which is usually denominated a relaxation of the surface.

But, however diversified in their *modus operandi*, they all concur, when properly administered, in reducing morbid action, and hence are to be considered as one species of depleting remedies. They lessen the force of the heart and arteries, by a direct evacuation from the skin, by taking out of the ordinary route, a certain portion of blood, which is determined to the extreme vessels, and by overcoming the constriction of the surface, which acts as an indirect stimulus to the moving powers of the circulation.

As it is important, in the management of many diseases, that sweating should be excited, I shall now suggest some few rules to be observed in the administration of the remedies which are calculated to produce this effect.

1. To promote perspiration, it is essentially necessary that the patient should be confined to his bed. Let the pulse, and the temperature of the body be carefully watched. If the one be vigorous, or the other high, venesection, where it is not particularly forbidden, should be employed. It is said, that sweating never takes place, when the heat of the skin is above a hundred and eight degrees, and by a later writer, six degrees less, and,

it is equally true, that, with a vigorous pulse, it rarely happens, and when it does, it is partial, and injurious.

2. In the exhibition of diaphoretics, give diluent drinks, unless the stomach is irritable. This remark particularly applies to the antimonial preparations, and some of the combinations of ipecacuanha. The temperature of the drinks must be regulated by that of the skin. The latter not being high, they should be warm, or even hot, but, if the contrary prevails, they must be given cold.

3. Be careful to have the linen of the patient, and bed clothes often changed, when under the effect of diaphoretics. The filth thus generated, does sometimes suppress perspiration, and adds much to his wretchedness.

4. In the low stages of disease, while pursuing the diaphoretic plan, studiously avoid purging, unless circumstances imperiously require this remedy. It is very apt, in this state of the system, to check sweating, and to bring on an aggravation of the complaint. It does this, by diverting action from the surface to the intestines, and by exposing the patient to cold.

5. As the action of the cutaneous vessels, and of the urinary organs, is in an inverse ratio, it is no less obviously proper, that when we wish the one, the other is to be restrained. During the operation of a diaphoretic, therefore, we are carefully

to abstain from the use of whatever has a tendency to promote the secretion of the kidneys.

6. In cases where a regular and long continued discharge from the skin is desirable, we should never hesitate to substitute the flannel for the linen shirt. This is a very important precept, and one which we ought always to carry with us into practice. It is, indeed, impossible to keep up perspiration for any length of time, with uniformity, without using flannel next to the skin. The older practitioners resorted to it, in all cases in which diaphoresis was to be promoted, a custom, however, I think, not only unnecessary, but really injurious in acute diseases, and more especially in febrile affections. The frequent changes of linen, in all such cases, is exceedingly refreshing to the patient, and, by its neat and comfortable feel, has a tendency to allay irritation, and to subdue the restlessness and inquietude of fever.

On the practical application of Diaphoretics.

Diaphoretics, on the whole, when judiciously managed, constitute, undoubtedly, a very important class of remedies. As already remarked, they determine blood to the surface of the body, lessen or remove internal congestion, obviate constriction of the extreme vessels, promote the cutaneous discharge, and diminish action, by reducing the quantity of the circulating fluids. But, perhaps, there

is no description of our remedies, which has been more abused. The practice that universally prevailed, at one time, of endeavouring to cure diseases of an inflammatory nature, by extorting sweat, by the liberal exhibition of the heating and stimulating articles, was productive of the most mischievous effects, and brought this class of medicines completely into discredit.

It has been alleged, however, that, since diaphoretics are not resorted to by the brute creation, like emetics and cathartics, they cannot be medicines of primary importance. But, an obvious reason for this exists, as there are very few of the lower animals, in which the function of perspiration takes place. Clothed in a thick coat of fur, or wool, or hair, no such action can be excited, on the surface of their bodies. But, as regards the human subject, and certain animals, there is no mode of curing diseases, more distinctly and intelligibly pointed out by nature, or the beneficial tendency of which, is more fully recognized by practitioners.

Of all the modes, indeed, of managing disease, the practice of sweating is, perhaps, the most popular, and generally prevalent. By the vulgar, it is resorted to on all occasions, and, in their estimation, is the safest and most effectual remedy. Nor is this opinion confined altogether to the low and illiterate orders of mankind. Every class of society seems, more or less, to have acquiesced in the pre-

judice, and to entertain the same views. It is still, however, obvious, that remedies which so powerfully operate on the system as diaphoretics do, are not wantonly to be trifled with, or inconsiderately used.

To the intermittent fever, diaphoretics are well adapted. When correctly prescribed in these cases, they have, indeed, the twofold effect of conducting the paroxysm to a speedy solution, by exciting perspiration, and of obviating its recurrence, by supporting the tone of the extreme vessels. But in these opposite states of the disease, a very different species of the medicine is exacted. To prevent the paroxysm, the stimulating diaphoretics are usually directed, while, to subdue it, the cooling and relaxing are found to be preferable.

Nor are these remedies scarcely less suited to remittent and continued fevers. They are not, however, to be rashly or indiscriminately employed. Discarding utterly the notion, of fever being an effort of nature to throw off peccant matter, as was once supposed, we are not to force or encourage perspiration in the early stages, by the use of any of the alexipharmic means. But, on the contrary, it is to be recollected, that, in the present reformed state of our science, it is a principle settled and fully recognised, never to resort to diaphoretics, in fevers of an inflammatory species, till arterial action and general excitement are considerably reduced by previous venesection and evacuations by

puking or purging. After this direct depletion, diaphoretics then come in with great advantage, and will commonly either mitigate, or completely arrest the progress of the disease. Even here, however, we trust only to the milder medicines, combining with them all the auxiliaries which have the same cooling and relaxing tendencies. It may, indeed, be laid down as a rule, never to be deviated from, that, in the whole of the inflammatory cases, we are rather to solicit perspiration by lenient means, than to extort it by any violent measures.

These reflections are alike applicable to our common bilious, and the yellow fever.

In that order of febrile affections, comprehended under the denomination of typhus, it is sufficiently known how beneficially the diaphoretic remedies are prescribed. As these fevers are accompanied with feeble action, attempts to excite perspiration may be much earlier made, than in the preceding cases. Even here, however, some degree of circumspection is necessary. It is now, I believe, an established practice, sanctioned by the highest authority, that, in the two forms of typhus, the gravior and mitior, of the systematic writers, sweating ought to be preceded by evacuations of the alimentary canal, and cold affusions to the surface. This, at least, was the course of proceeding in those diseases during my residence in Europe, and I have no reason to suppose, that any change, in this respect, has since taken place.

The typhus fever, such as I have alluded to, is not one of the complaints of this city, or, perhaps, in any great degree, of any section of the United States. Exclusively, or nearly so, the product of camps, of ships, of jails, and other crowded receptacles of vice, poverty, and filth, it finds no where within the limits of our happy country, any copious source of generation, or the medium of general prevalence. As yet, I have had under my care only a few cases of this species of fever, affording me too narrow an opportunity of testing, by my own personal experience, any mode of treatment, and therefore I advance my opinion diffidently on the subject. Determining, however, from what I observed in the hospitals abroad, I should, without hesitation, say, that the practice which I have already detailed, is the one by which the disease is most successfully managed.

But, in the place of this severe scourge of Europe, there has, of late years, appeared among us a wide wasting pestilence of the same typhus character, which, in its career, has ravaged and desolated some of the fairest portions of our country. All accounts agree in representing this disease, the spotted fever, as a perfect Proteus, assuming every variety of shape, and requiring no little diversity of treatment. But in whatever form it commences, there generally ensues a great, and in many instances, an unprecedented prostration of strength. Two leading modes of treating the disease, have

been adopted. By one set of practitioners, the most profuse use of the diffusible stimulants, has been recommended, while, by another, the sweating plan is preferred. My opportunities have been sufficient to compare these different plans of managing the disease, and I do not entertain the slightest doubt of the superiority of the latter course. The mind of the physicians of this city, at least, is pretty well made up on this point, and they all acknowledge the infinitely greater success which attended the early and steady employment of the more active diaphoretic remedies. But, such is the practice when the disease assumes its most simple guise. Distinguished, as it very often is, by great local determinations, as in the bilious, pneumonic, and anginose cases, it is universally conceded that in these, some difference of treatment is required. Emetics, here, have been found pre-eminently useful, and are sometimes followed by the mercurial purgatives. After the end is attained for which these evacnants are administered, we may recur to the diaphoretics, and, to remove any remnant of topical congestion or pain, blisters, or the most acrid rubefacient applications, become the appropriate means.

But, besides this new species, we have another form of the same description of disease, which hitherto has not been noticed, or I have not, at least, met with any account of it in the course of my reading. It is produced by the long exposure to cold, and affords one of the clearest illustrations

of the sedative influence of a low degree of temperature on the animal economy, when long continued. The cases of the disease, which have come under my observation, have been chiefly the paupers of the Alms House, who, sometimes, are brought into that establishment during the intensely cold weather of winter, in a state approaching torpidity. They are in a heavy stupor, the power of speech is lost, or greatly impaired, the pulse is either very feeble, or wholly imperceptible, the surface is cold, with nearly an extinguishment of sensibility, and suppression of the movements of vitality. In this situation, which resembles not a little the incipient state of hybernation of some of the inferior animals, the indication is obviously to solicit the return of the actions of life, by the use of stimuli, graduated to the feeble remains of excitability. The warm bath, in the commencement, perhaps, answers better than any other remedy, but, where this cannot be procured, dry heat applied to the surface, may be substituted, and cordial stimulants should be given internally.

It is often exceedingly difficult, from the loss of susceptibility, to arouse the system by any plan of treatment. But, most commonly, after a very short time, a partial re-action takes place, and the result is, a slow and feeble state of fever, very analogous in all its essential attributes and leading features, to the typhus gravior, of the schools. Like that disease, in its advanced stages, there is the dark and

incrusted tongue, the skin is hot and parched, the pulse is quick and small, there is low delirium, the eyes are glassy, with dilated or exceedingly contracted pupils, and that lank, haggard, and distressing expression of countenance exists, which is peculiar to the worst forms of the malignant febrile affections. In many instances, I have known the patient to continue in this state, with little or no deviation, for six or eight weeks, and ultimately to recover. The treatment, during this protracted interval, has consisted, in the persevering exhibition of stimuli, chiefly the volatile alkali, the capsicum, camphor, wine, or warm spirituous drinks. As soon as the system begins to re-act, which is perceived by a more complete exercise of the natural functions, stimulating sudorifics may be employed with advantage. They relax the surface, develop a new animal temperature, and release, as it were, from the bondage in which they had so long been held, all the vital energies.

As, in some degree, connected with the preceding diseases, I am next to make a few remarks on the application of diaphoretics to those febrile affections, which are supposed to be produced from contagion. During the dominion of the humoral pathology, a system of notions, that originated in an eclipse of medical reason, and which has been perpetuated to the present moment, by an ignoble servitude to authority, it was believed,

that the particles of the virus floating in the circulation, and still keeping up the fever, could be eliminated through the pores of the skin. Conducting the treatment on this hypothesis, the sweating plan was early resorted to, and pushed to the utmost extent, in every stage of the disease. As described, such was the course pursued, more especially in plague, smallpox, and, at one time, even in syphilis, affording an example, among many others, which might be adduced, of false theory being the parent of mischievous practice.

In disease of this nature, whether of a low or inflammatory character, there is unquestionably a point which will occur to every judicious practitioner, at which we may very usefully resort to diaphoretics. But there is nothing peculiar in their operation, in these cases. They act here, as in other instances, on the general principles I have already stated, and the only guide which is necessary to their correct administration, is, a due attention to the state of the system, either using the stimulant or relaxing medicines, as the existing circumstances may seem to demand.

Eruptive complaints, whether of an acute or chronic nature, have always been much treated by diaphoretics. The skin being the immediate seat of those diversified affections, it was reasonable to suppose, that sweating would produce the best effects. There are many of these, however, in which there is so much heat of the surface, and, at the

same time, such arterial action, that it is not admissible to resort even to the mildest diaphoretics, without previous evacuations of a more direct and powerful description. But the force of the circulation being reduced by venesection or purging, or by cold affusions, a relaxation of the surface, by means of these medicines, is often productive of the happiest effects.

In most of the affections of the bowels, diaphoretics are, undoubtedly, among our best remedies. It is now more than half a century, since the celebrated Dr. Akenside, the poet and the physician, proclaimed the superiority of the sweating plan over all others, in the management of dysentery. To the preparations of ipecacuanha, as we have before seen, he chiefly confided in these cases. These views have subsequently been adopted, with some modifications, by several very distinguished practitioners. It has been particularly insisted by Richter, an authority, among the highest of the present age, that dysentery is a rheumatic, or catarrhus affection of the larger intestines, and accordingly, in its treatment, the leading indication, is to excite perspiration. Without adopting precisely his theory, as applicable to all cases of the disease, I concur, most entirely, in the rectitude and propriety of his practice. It has long been my conviction, that, in all the bowel affections, we have, as a general rule, purged infinitely too much. Cherishing, still, the an-

tiquated doctrine of morbid humours, it is usual, in these complaints, with many practitioners, to evacuate the intestines, so long as almost any discharge can be procured, under the impression, that the matter retained, is irritating and offensive, and, therefore, the immediate source of all the mischief. The very reverse of this, I hold to be true. Contrary to the generally received opinion, it appears to me, that the accumulation of acrid matter, in these cases, is the effect of previous irritation in the stomach and bowels, which causes an increased effusion from the mucous follicles, or the exhalent vessels, and sometimes, a very vitiated secretion of bile. Deducing my practice from this view of the nature of the disease, I have been accustomed, after comparatively moderate evacuations of the bowels, to exhibit medicines so compounded, as to meet the double indication of allaying, immediately, the intestinal irritation, and more remotely, of relaxing the surface. Combinations of opium and ipecacuanha, are an invaluable preparation for this purpose. But where the irritation is excessive, and, as usual, is productive of frequent and painful discharges, I either augment the quality of opium, or, what is more effectual, administer anodyne injections, three or four times in the course of the twenty-four hours. These remedies will, in most cases, very speedily calm the irritation of the bowels, and, as soon as this happens, the acrid discharges, together with the other symptoms, cease to be troublesome.

In cholera morbus, as well as in the bowel affection of children, which is emphatically called the summer complaint, I pursue pretty nearly the same practice, and with equal success. The latter disease, which might really be considered as among the opprobria medicorum, from the dreadful expenditure of life which it occasions, in the early season of existence, owes, undoubtedly, much of its mortality to the preposterous mode in which it has hitherto been treated. Continually purged for days in succession, what else can be anticipated from such a course of exhaustion, except the rapid decay, and ultimate dissolution, of the delicate frame of a child? My practice in cholera infantum, is extremely simple. Entertaining the same views with respect to it, as I do of dysentery, I endeavour, after limited evacuations, to quiet the irritation of the bowels, which being accomplished, I next resort to astringents, to restore the tone of the alimentary canal, and for this purpose, the decoction of the root of the black or dew berry,* is preferable to every other article.

As yet, my remarks have had reference chiefly to the acute forms of intestinal disease. Before I finally dismiss the subject, I must say a word or two relative to chronic dysentery. This is a complaint, which, perhaps, has not attracted as much attention as it deserves. In these cases, though the acute symptoms be removed, there still re-

* Vid. Astringents.

mains considerable tenderness of the bowels, which are excited to action frequently, and by the slightest causes, producing small stools, mostly consisting of mucus, and very offensive. Every evacuation is attended with more or less griping, and which often becomes exceedingly painful. Little appetite exists, and what food is taken, is not digested. The skin is dry, and parched, the complexion sallow, and the eyes are sunk, with a shrivelled and meagre expression of face. Evidently, there is here a confinement of the blood to the great vessels, and, on this account, the determination to the surface is considerably diminished.

I have met, in the course of my practice, with several such instances, which, after resisting the ordinary treatment by tonics, have very rapidly recovered under the use of those means which are necessary to promote, and keep up a gentle relaxation of the surface, and a moderate degree of perspiration. The same practice may be pursued in chronic diarrhœa, and in protracted cholera infantum with no less advantage. The disease, in all these cases, is occasionally continued, by a morbid condition, either of the liver, or some other of the viscera, and where this happens, or we have reason to suspect it, calomel, in minute quantities, may very usefully be united to the other medicines.

After having said so much, it is hardly necessary to add, that in enteritis, the same course is to be pursued, with this difference, only, that venesection

tion is much more, in the latter instance, urgently demanded.

As respects peritoneal inflammation, I have had already several occasions of expressing my opinion of the peculiarity of its nature, and the extreme difficulty of its cure. I shall, therefore, after repeating here, that the most prompt and copious detractions of blood, are indispensable in the first stages of an attack, only mention, that having reached the point when the lancet must be stopped, sweating is the remedy in which we ought to confide, and that it will often be productive of the most satisfactory results.

It may be further remarked, that it is highly important in the management of every bowel affection, and in every stage of it, to attend vigilantly to the state of the surface, with a view of preserving the tone and excitement of the extreme vessels. To attain this end, the co-operation of blisters, and of warmth, by means of flannel, is frequently required, and, to render the latter more effectual, in these chronic cases, it should be applied as a roller tightly around the body, from the hips to the arm-pits. By this very simple expedient, I have done great good in these complaints, having very much used it, as is well known, both in my public and private practice, long before the appearance of Mr. Dewar's book, where it is particularly noticed.* The roller,

* It is also a matter of proof, that many years ago, I used the roller to rheumatic limbs, and in gangrene from œdematous swellings.

under such circumstances, seems to act, by affording mechanical support to the bowels, by producing a determination to the surface, by exciting moderate diaphoresis, and by sustaining the natural degree of temperature. By the writer to whom I have just alluded, it is stated, that this application is equally beneficial, even in the early stages of dysentery, an opinion, however, in which I cannot acquiesce. But as a preventive of a relapse, where such is apprehended, it may be very advantageously recurred to, in the convalescence of that disease.

There is scarcely a case of phlegmasia, in which the skin is not hot and dry, and hence diaphoretics are plainly indicated. But, as the temperature is often above the sweating point, we must previously resort to measures which have a more powerful tendency to reduce the force of the circulation, and to restrain the evolution of heat. Cold to the surface, is an admirable remedy under such circumstances, though there are some exceptions to its use, and rheumatism is one of those cases. Why cold should prove injurious, when applied to the heated and inflamed joints in this disease, does not very clearly appear. But of the fact, there can be little doubt, and we must be governed accordingly in practice.* Every one who is at all conversant with disease, has heard of the peculiar efficacy of sweating in

* I am perfectly aware, that cold applications to rheumatic swellings, have been used in this country, on the authority of the Russian physicians, but, I have reason to believe, with results, such as I have stated.

rheumatism. It is, however, worthy of remark, that, in the early stages of this complaint, it is rarely beneficial, and ought, invariably to be preceded by more active depletion.

As regards the associate affection, gout, much difference of opinion has prevailed, as to the propriety of our class of remedies. Believing it to be one of those diseases, dependent on morbid matter, and that the skin is the natural emanctory for its discharge, the disciples of the humoral pathology, indulged in the very free use of diaphoretics. I have already developed my views, as to the treatment of the arthritic affections. As auxiliary means, diaphoretics are unquestionably serviceable, and may be liberally employed. Next to purging, there is scarcely any thing which affords so much relief as sweating, in this disease. Nature, whose indications ought always to be consulted, and which, most generally, may be trusted, distinctly points out these two operations. It ought not to be forgotten, that the paroxysms of regular gout, when spontaneously cured, go off, most commonly, with diarrhœa, or diaphoresis, and sometimes by diuresis. Nevertheless, we are not too early to resort to this remedy. As much as any other case, is the arthritic paroxysm distinguished by a high degree of inflammatory action, peculiar in its nature, though best managed by the ordinary means of depletion. The pulse and temperature of the surface being lowered, sweating comes in, sometimes, very advantageously. As in

rheumatism, cold applications, though apparently proper, are prohibited. Much, I am sensible, has been said in their favour, and especially of the utility of immersing the feet in a cold bath, when they are painfully swollen by podagra. But the experience of the wise and the circumspect, the only guide in such matters, is against the practice most decidedly. The only case in which it is at all admissible, is where the subject of the attack is of a vigorous constitution, and even here, it will be prudent, to fortify the stomach previously, by taking something cordial and stimulating, so as to guard more completely against a retrocession.

Of the utility of diaphoretics, in some of the pulmonary affections, we are all apprised, and they are appropriate to very different stages of these cases. Exhibited in the forming state of catarrh, or of pneumonia, and sometimes of asthma, they will completely suppress the attack, and reinstate health. But if postponed till the disease is firmly fixed, they never fail violently to exacerbate the symptoms, and to render the cure more tedious and difficult. Yet, as in the preceding cases, when arterial action is sufficiently reduced, sweating may be recurred to, with a view of equalizing excitement, and extinguishing the last remnants of disease, and this is especially true, in relation to pleurisy, and the other acute shapes of pneumonic inflammation.

The only case of Neuroses, in which sweating

has been used by me, is idiopathic tetanus. This affection, when brought on by exposure to cold, by far the most common cause of it, partakes much of the character of rheumatism, and exacts nearly the same treatment. But there is this difference in the two cases, that the former has little activity of pulse, and the surface is cold and damp in the first stage. Diaphoresis, therefore, is at once indicated, and when the system fully re-acts, which it will speedily do, under the cordial and stimulating remedies, as the hot bath, volatile alkali, and wine; when, then, if necessary, we may purge and bleed.

Diaphoretics are advantageously prescribed in a variety of other morbid affections. They have been especially recommended in diabetes, and some few cases are recorded, of their successful exhibition. Two opinions at present exist, relative to the origin and seat of this disease. The first refers it altogether to derangements in the secretory organs of the urine, and the second, to a vitiated or depraved state of the digestive apparatus.

The latter hypothesis, which is by no means a modern one, was adopted by Cullen, and has subsequently been supported by a number of able and ingenious writers. My own conviction is, that diabetes depends mainly on a morbid condition of the stomach, and, perhaps, more or less, of the whole chylopoietic viscera, by which the assimilative process is imperfectly executed. To this conclusion,

I am led, by various considerations, which I cannot here be permitted to detail.

Of this disease, there are two distinct species:

1. *Diabetes mellitus*, when the urine has the colour, odour, and taste of honey.

2. *Diabetes insipidus*, when limpid only.

But, though the complaint may assume different forms, it is managed by the same remedies, accommodated to the state of the system, and the particular circumstances of the case. It is not my intention to enter into the treatment of diabetes. Yet, I cannot forbear again to mention, that in the few cases of the disease which have come under my notice, there was great activity of pulse, and many of the other indications of the febrile condition. After bleeding very repeatedly, and never without manifest advantage, I have trusted to occasional purging, and finally, to the plan of treatment which is adopted in dyspepsia, consisting of tonics, the nva ursi and lime water more particularly, and to a diet restricted to milk, and the lighter and most digestible meats.

I have remarked, that sweating has sometimes been used with success in these cases. Diaphoretics are, indeed, a class of medicines, from which salutary effects might have been anticipated. I mean so far, at least, as respects the diminution of the urinary discharge. The principle on which they act here, has been explained on a preceding occasion. But, besides diverting evacuations from

the kidneys to the exhalents of the surface, they seem to be especially required by the state of the skin itself, it having been noticed by the writers on this subject, that the surface of the body, in diabetes, is singularly dry, and often either parched and heated, or cold and scaly.

Dropsy is the last disease of which I shall speak. As an increase of the discharge by the skin, has the effect of diminishing that from the kidneys, diaphoretics could hardly be presumed to be admissible in dropsical effusions. They have, however, unquestionably done good in some of these cases. It was, indeed, at one time, quite a favourite practice, to treat dropsy by sweating, and has recently been again revived on the continent of Europe. I have used it myself with sufficient success to recommend it to attention. The cases to which the remedy seems more particularly adapted, are such as have had their origin in intermittent fever, and are kept up by visceral congestions. Commonly, there is here a small, tense, corded pulse, with cold extremities, and pallid countenance, a dry skin, together with all the other circumstances which denote a feeble and imperfect circulation on the surface. Diaphoretics, from their centrifugal operation, relieve the viscera by determining the blood to the extreme vessels, and restore that equipoise in the circulation, which constitutes the first step in the cure of the disease, and the re-establishment of health.

No practitioner can be ignorant of the utility of diaphoretics in the more obstinate chronic affections of the skin, and especially in the leprous and herpetic cases. They act here, most probably, by changing the morbid condition of the extreme vessels, and the antimonials, united with mercury, are thought the most effectual. But, as we shall hereafter learn, there is a class of articles, as sulphur, guaiacum, &c. not less suited to certain cases.

To the preceding diseases, many others might be added, in which diaphoretics have proved serviceable. But I have already lingered so long on this subject, that I cannot go into further details. Enough has been said, to serve as a guide to their general administration, and, as respects their special application, I must leave much to the sagacity and experience of the practitioner himself.

DISCOURSE XIX.

Of Particular Diaphoretics.

THESE may be divided, according to my general plan of classification, into the mild or relaxing, and the active or stimulating.

Of the first order, or mild diaphoretics, we have not many articles which possess this, as a distinct or independent property. They either have it, in common with an emetic or purgative power, or acquire it by combination with one or more substances, and most of the neutral salts are of this description. Exhibited in minute doses alone, or in union with antimony, they will generally produce diaphoresis, or, at least, a softness of the skin, accompanied by a reduction of arterial action, and of animal temperature. In this respect, they resemble the mineral acids, and some other articles, which are denominated refrigerants. How this class of medicines produces its effects, is not easily explained. By the later writers, it is referred altogether to a chemical action. But the hypothesis, though sufficiently ingenious, affords no satisfactory solution of the problem. As the reduction of the power of the circulation, usually diminishes, in a correspondent proportion, animal heat, may it not be owing only to this cause?

ANTIMONIAL PREPARATIONS.

It is well known, that all of these, without a solitary exception, may be so managed as to prove diaphoretic, though there are two or three of them which, at present, are greatly preferred for this purpose. As an imitation of the once celebrated James's Powder, a combination of the calx of antimony with the phosphate of lime, called the pulvis antimonialis, has been introduced into the materia medica, as one of the most active of the sweating medicines. It is not at all improbable, that it may answer exceedingly well, but it has now, for some time, entirely given way in practice to a neater and less precarious preparation. Those, however, who are disposed to try it, may direct it in the dose of eight or ten grains, to be repeated, if necessary, at stated intervals.

On the continent of Europe, and especially in France, the golden sulphur of antimony, or Kermes mineral,* for they are essentially the same, has long maintained an indisputable ascendancy, in the estimation of practitioners, over all its correlative preparations. My own experience will not allow me to speak in any decisive tone, as to the value of this medicine. I have very rarely prescribed it, because my prejudices were against its use, chiefly on account of its being less convenient in the adminis-

* Sulphur Auratum Antimonii, *vel* Sulphuretum Antimonii Præcipitatum.

tration. Compared with the emetic tartar, it is, I think, in every view, decidedly inferior. As I have, more than once before said, this latter medicine may be so combined, as to supersede all the rest of the antimonial preparations. Nearly tasteless and inodorous, it can, at all times, be exhibited without difficulty, and certainly possesses, so far as I am able to determine, equal, if not transcendent powers. As a diaphoretic, the golden sulphur of antimony is usually directed in the dose of five or six grains, made into pills. The emetic tartar is, when given alone, simply dissolved in water, sometimes coloured with cochineal merely to disguise it, and in the fourth, sixth, or eighth of a grain every hour or two, till the effect is fully attained. But it is much more customary to prescribe it in various states of combination, and particularly where it is desirable to move the bowels, as well as to relax the surface. To meet this double indication, I have often resorted, with conspicuous advantage, to the annexed formula.* Of this mixture, a table spoonful may be given every hour. Exhibited more frequently, or in a larger dose, it will evacuate most copiously the alimentary canal. After the previous use of the active purgatives, as calomel, and its ordinary adjuncts, I know of no medicine, which is better suited to the bilious fevers of our climate. It

* R Sal glaub. ℥i., Emet. tart. gr. i., Succ. limon. ℥i., aq. font. ferv. ℥iii. m.

keeps the bowels and the skin precisely in that condition which is so favourable to the solution of fever.

Not dissimilar in its effects, or, at least, in some of its leading effects, to this mixture, is a saturated solution of the carbonate of potash, with a vegetable acid.* To increase its diaphoretic power, the dulcified spirit of nitre and the antimonial wine may be added, in such proportions as may seem necessary, and the dose is a table spoonful. This preparation is peculiarly adapted to the febrile affections of children, and even to grown people of delicacy of habit. Exceeding grateful to the stomach, when given without the antimonial wine, it is eminently calculated to allay nausea, to soften the skin, to preserve the laxative state of the bowels, and to obviate or subdue the exacerbations of fever. This is called the saline or neutral mixture: the draught of Riverius differs chiefly from it in being given during its effervescence, and is formed by dissolving forty or sixty grains of the salt of tartar in half a wine glass full of water, adding gradually the citric acid, or very sharp vinegar, till the fixed air is disengaged, when, in this foaming state, it is swallowed. By some practitioners, the solution of the alkali is first exhibited, and immediately afterwards the acid, so that the disengagement of

* R Succin. lim. *vel* Acet. com. ℥ii., Sal. tart. q. s ad saturand: adde Aq. font. ℥ii., Sacch. arb. ℥i. m.

the fixed air may take place in the stomach. The former mode, however, appears to me to be preferable. As a corrective of nausea, and even to restrain vomiting, this draught has been much celebrated. Excepting this quality, which it certainly has in a very high degree, it is inferior, I believe, in all other respects, to the saturated mixture.

NITRAS POTASSÆ.

No medicine is, perhaps, more used in fever, and other inflammatory cases, than the nitrate of potash, or common nitre, with a view to its diaphoretic property. But I am doubtful whether it has any direct operation of this sort: unquestionably it does not often produce sweating. It is, nevertheless, a very important medicine in reducing the force of the circulation, from whatever cause proceeding, and hence is applicable to the treatment of a very extensive set of diseases.

To increase its powers, however, it is usual to unite with it calomel and emetic tartar, and this combination constitutes the well known nitrous powder, which, of late years, has been so universally employed. These three ingredients enter into its composition in the proportions which are stated below.* Of these powders, one may be taken once in two

* R Sal. nitr. \mathfrak{z} i., Calom. prep. gr. xvi, Emet. tart. gr. i. m. Div. in pulv. viii.

or three hours. This prescription is suited rather to the more robust patients, and, from the quantity of calomel which it contains, will be apt to purge. But this is a matter which, in practice, may be easily regulated. In some cases, it will be prudent to exclude the calomel, lest it might harass the bowels, or even excite salivation, which it is likely to do, when continued for several days. I have known, indeed, in more than one instance, a single dose of the powder to have this effect. The emetic tartar will also have to be graduated to the circumstances of the case. Even in the moderate quantity in which it enters into the preceding prescription, it sometimes exceedingly distresses the stomach, or excites vomiting.

The principle, which is to serve as a guide to the exhibition of this valuable medicine, may be collected from the tenor of my preceding observations, and hence I shall not notice particularly the cases to which it is suited.

IPECACUANHA.

The last of the relaxing diaphoretics I shall mention, is the ipecacuanha, than which, no article appertaining to this set of medicines is more certain, active, and efficient, in the generality of cases. It may be given in the dose of one or two grains, to be repeated, as is customary with such remedies. This

is an article which seems to have a peculiar affinity to the surface, and operates very remarkably, by the degree of relaxation which it induces. It is, on this account, exceedingly appropriate to all cases where spasmodic constriction, of any kind, is to be overcome by sweating. The wine of ipecacuanha may be substituted, and the dose is about a drachm.

In concluding the consideration of the lenient diaphoretics, I have to remark, that they ought to be given at much shorter intervals, and, if necessary, from gastric distress, in smaller doses, than is commonly directed. As a general rule, the period between the doses of a medicine should not be so remote as to allow of the slightest abatement in the impression, and this applies with peculiar force to the articles of which I am treating. The operation of most of them is extremely transitory, and if the impression be not kept up, by a regular and frequent renewal, it quickly passes away, leaving the system to contend against all the consequences of the process of sweating, imperfectly performed, or too suddenly suppressed.

Of Stimulating Diaphoretics.

The force of the circulation, with a view of exciting perspiration, may be increased by a variety of means. Of the medicines capable of doing this, I shall first mention opium, which, though undoubtedly a diaphoretic, is rarely exhibited alone. It is

highly stimulating, and with a view of tempering this effect, as well as to determine it more directly to the surface, we usually combine it with some other substance. Either antimony or ipecacuanha, is employed for this purpose, and may be prescribed in substance or in the fluid state. A grain of opium, and one fourth or sixth of a grain of emetic tartar, will sometimes actively excite sweating. But combinations of laudanum, with antimonial wine and the dulcified spirit of nitre, are a neater, and perhaps a still more efficient prescription.*

This draught is usually given at bed time, and is very applicable to the ordinary catarrhal affections, or other complaints where a moderate diaphoresis is desirable. But it is not so well suited to excite, or to keep up profuse sweating in the more intractable cases. To meet this indication, the union of opium with ipecacuanha is infinitely to be preferred. There is, indeed, not in the whole circle of diaphoretics one article, which in my opinion, can at all be compared, either as regards certainty, or general utility, to the preparation called Dover's powder.† Comprising within itself opposite properties, it may, on this account, be applied to a great diversity of cases, as has and will be still further indicated in

* ℞ Tinct. Theb. gtt. xxv. Sp. nitr. dulc. ℥i. Vin. antimon. gtt. xxx. Aq. font. ℥ ss. This combination very frequently operates as a diuretic in dropsy, and has more than once within my knowledge removed the effusion in this disease, under circumstances, the least to be expected.

† Pulvis Ipecac. et Opii.

the progress of these discourses. This famous composition consists of one part of opium and ipecacuanha each, and eight of the sulphate of potash. By some practitioners, attempts have been made to improve its qualities, by substituting in the place of the vitriolated tartar, loaf sugar, nitre, &c. But so far from any advantage having accrued from these innovations, I am persuaded that they have proved injurious. The exact prescription of Dover, has always appeared to me to be one of those lucky hits in the compounding of medicines, which allows of no alteration, either in the ingredients themselves, or the proportions. As a diaphoretic, this powder, made in the old way, has for a very long time maintained an almost unrivalled reputation for certainty of effect, and before we run the risque of change, the evidence to the improvement of it by doing so, should be very clear and satisfactory.

In the exhibition of the Dover's powder, very precise rules have been laid down by several writers, and particularly by Cullen, which they insist upon having observed. But I am not sensible that any particular formalities are demanded in this case, and all that seems to me to be necessary is an attention to those general precepts which I suggested in my preliminary discussion on this class of medicines. The dose of the powder is about ten grains, to be repeated every third, fourth, or fifth hour, and to have its operation promoted by warm

drinks, and particularly wine whey. But these, as I formerly mentioned, are not to be allowed immediately, lest vomiting should be provoked.

To point out in detail, the various diseases in which this medicine is directed, seems to me to be superfluous. It is, perhaps, suited to the whole of the phlegmasia, in the secondary stages, when arterial action, and general excitement, have been subdued by venesection, and the rest of the directly depleting processes. But it is in rheumatism, under the precise circumstances which I have just stated, that it has been mostly employed. As a maxim pertinent to this case, let it be recollected, that the Dover's powder is never admissible in this disease, while any considerable febrile excitement prevails, and, when once begun, the sweating is steadily to be maintained for not less, on an average, than twenty-four hours.

Of the utility of this powder in the bowel affections, I have nothing to add to what I have so recently and repeatedly said, under different heads. Though this precise preparation is not here always prescribed, we resort to combinations of nearly the same articles, and pretty much in a similar way.

Not long ago, we had some communications, in the London medical journals, of the efficacy of Dover's powder in diabetes. Whether it is really useful in any of these cases, I cannot determine, from any experience of my own. Diaphoretics are, undoubtedly, sometimes called for in this disease,

and the Dover's powder, under such circumstances, would seem to have, on several accounts, strong claims to our attention.

By this medicine, I have treated dropsy exclusively, and not without success. The experiment was made in one of the public institutions of this city, on cases apparently excited by cold, and blended with intermittent fever, and in ascites, as well as anasarca. Three out of the five, were promptly and radically cured.

CAMPHOR.

To the class of medicines of which I am treating, camphor has always been considered as belonging. It undoubtedly evinces some affinity to the skin, though, given by itself, rarely produces any perspiration. In this respect, its power may be augmented by connecting it with opium, calomel, nitre, ipecacuanha, or antimony.*

PREPARATIONS OF AMMONIA.

Closely allied to camphor, in its leading properties, is the carbonate of ammonia. Like that medicine, it acts on the surface, and pretty much in the same degree. They are each employed with singular advantage in the low states of disease, but more

* Stimulants.

to sustain the tone and excitement of the system, than to promote sweating.*

The *Spiritus Mindereri*, or acetate of ammonia, is a much superior diaphoretic. This preparation was once in high repute, but, as too often happens, in the fluctuations of practice, has been supplanted by other medicines of far less efficacy. Exhibited in the dose of a table spoonful every hour or two, mixed with a little water, it with great certainty excites perspiration, and may be very advantageously resorted to on many occasions. Of all the diaphoretics, it is the best adapted to break down and bring to a speedy issue, the paroxysm of intermittent fever. In its effects, it is neither very heating nor stimulating, and may, therefore, be applied with less caution, than most of the other articles of the same class. There is another circumstance which recommends this medicine: being cordial to the stomach, it will often be retained, when, from irritability of that organ, every thing else is rejected.

The citrate of ammonia has many of the qualities of the preceding preparation, and may be used as a substitute, though I cannot doubt of its inferiority. It is generally an extemporaneous prescription, the lemon juice being saturated by the ammonia, in the same mode precisely as I have directed with regard to the potash, in the neutral mixture.

* Stimulants.

EUPATORIUM PERFOLIATUM.

This, which is a native vegetable, I am persuaded, is among the most valuable of the diaphoretics. Combining within itself a vast diversity of properties, it is susceptible of being applied to numerous practical purposes. By a different mode of exhibition, it proves emetic, purgative, diuretic, tonic, and actively diaphoretic. But it is in the last view, that it now interests us.

Every part of the plant is medicinal, though the flowers are most so. Exhibited in strong infusion, they hardly, indeed, ever fail of their effect, and hence are greatly prescribed, especially in domestic practice.

To catarrhal affections, in the early stage, our medicine is said to be well adapted. The people of the country prescribe it freely in such complaints, and repose no slender confidence in its powers. Not the least memorable application of the article, was of this nature. Thirty years ago, we had throughout the United States, a singular catarrh, or species of influenza, which, in consequence of the sort of pain attending it, came to be denominated the *break bone fever*. The eupatorium, acting as a diaphoretic, so promptly relieved this peculiar symptom, that it acquired the popular title of *bone-set*, which it retains to the present moment. The more common name, however, is thorough wort.

Nor is it less used in acute rheumatism. My own

experience will not permit me to say much of it, under these circumstances. Determining, however, from analogy, which is corroborated by reports I have received from several respectable practitioners who have tried it, I can entertain no doubt of its being beneficial in some of the rheumatic cases.

It has been stated, that in one of our epidemics, the eupatorium was successfully prescribed. Encouraged by former experience, during the yellow fever of 1798, in this city, when the sweating plan of treating the disease was so eagerly pursued, the thorough wort was again recurred to, and most strenuously recommended. Nor was it overlooked in the management of the still more recent epidemic of our country, the spotted fever. But, on the contrary, it came into very general use, and received the strongest attestations of many practitioners, to its superior powers.

The disease, however, in which the eupatorium has probably been productive of the greatest advantage, is intermittent fever. It has, in many parts of the country, so fully established its reputation in this case, as to exclude the Peruvian bark, and similar articles, and, on account of its peculiar efficacy, it is known by the significant appellation of *ague weed*. An intelligent medical friend informs me, that his experience with it is ample, and that he is able to confirm all that has been alleged, of its powers in these cases. The result of my own observations, which have also been considerable, will

not authorize me to pronounce so favourable a decision as to its virtues. But I still estimate it highly, as one of the remedies in this disease, having, by it alone, cured some very obstinate intermittents. The cases, to which it seems to be more particularly suited, are those which occur, or run into the winter. These, almost universally, require, in their management, a combination of the diaphoretic and tonic power, and hence, perhaps, the efficacy of our medicine, which is exactly of this description.

Besides the diseases already mentioned, the eupatorium has been successfully administered in some other cases. To several of the forms of dropsy, it is alleged to be applicable. Whether it be so or not, I cannot say from my personal knowledge. I have, however, collected sufficient evidence of its doing good in the hands of other practitioners. The physicians of this and the neighbouring states, are much in the habit of prescribing it, in the dropsical effusions. But their practice seems to have been regulated by very little discrimination. It is presumable, from the general qualities of the medicine, that it would render most service in those cases of the disease, generated in marshy districts of country. Dropsies of this sort, commonly wear the intermittent type, and are successfully treated, in many instances, by an union of the tonic and diaphoretic remedies. It is, moreover, said, that the eupatorium is very beneficial in some of the

chronic cutaneous affections, and particularly in a species of herpes, incident to the people of the southern states. That it should prove advantageous, under such circumstances, was, indeed, to have been anticipated, from its active operation on the surface.

These are all the diseases, in which, so far as I have heard, the eupatorium has hitherto been employed. Considering, however, its various powers, there is every reasonable probability, that it will hereafter prove to be susceptible of a much more extensive and diversified application in the practice of physic.*

ASCLEPIAS DECUMBENS.

This is the botanical title of a very beautiful and valuable plant, which is peculiar to the United States. To the southward, it is found more abundantly, though it is scattered throughout the country. It is known by the vulgar titles of swallow-wort, butterfly weed, and pleurisy root.

As far back as the earliest recollection extends, the root of the asclepias has been employed in popular practice, as a sweat in catarrh, in rheumatism, in the inflammatory fevers, and, above all, in pleurisy. No medicine has, perhaps, an equal reputation among the people of the country, in these cases, and in the pneumonic inflammations, es-

* Tonics.

pecially. Nor are there wanting some respectable practitioners, who repose much confidence in its powers. The usual mode of giving it, is, to make a strong infusion of the root, which may be drank as freely as the stomach will allow.

My experience with this medicine, is sufficient to enable me to speak with some degree of confidence of its powers. As a diaphoretic, I think, it is distinguished by great certainty, and permanency of operation, and has this estimable property, that it produces its effects without increasing much the force of the circulation, raising the temperature of the surface, or creating inquietude and restlessness. On these accounts, it is well suited to excite perspiration, in the forming states of most of the inflammatory diseases of winter, and is not less useful, in the same cases, at a more advanced period, after the reduction of action by bleeding, &c. The common notion of its having a peculiar efficacy in pleurisy, I am half inclined to suspect, is not altogether without foundation. Certain it is, that it very much relieves the oppression of the chest, in recent catarrh, and is, most unquestionably, an expectorant in the protracted pneumonies.

As a tonic, our medicine has sometimes been prescribed in the autumnal fevers, and still more so, in debilitated states of the stomach, attended with flatulence, and is supposed to be so serviceable in the latter case, that it is designated by the term *wind weed*, or *wind root*, in domestic practice. The

powder of the root, in the dose of half a drachm, is preferred, when the medicine is directed with this view.

Of late, I have understood, that another species of this plant, the *asclepias syriaca*, or silk weed, or milk weed, has been found to have nearly the same properties, with this addition, that it is narcotic, and affords much relief in asthma, in old coughs, and even in pulmonary consumption. As one of the lactescent plants, it is not improbable, that this may be, in part, true,

DISCOURSE XX.

The Subject Continued.

I HAVE now enumerated the chief articles, which are usually to be met with in the class of diaphoretics. But, in addition to these, there is a set of medicines, which indisputably has a close relation to the surface, as is evinced, very strikingly, by the influence of the articles over the cutaneous affections. The medicines to which I allude, though they produce little or no perspiration, cannot, perhaps, be more appropriately introduced, than in this place, and I shall, therefore, proceed with their history.

SULPHUR.

In treating of cathartics, this substance was noticed, somewhat in detail. But, it has properties which, in another view, give it even stronger claims to our attention. No one is entirely ignorant of the efficacy of sulphur in the diseases of the skin. The only comment I shall make on this trite application of the remedy, is, that it is necessary, in some of these cases, to use it in the shape of an unguent, as well as to give it internally. We direct, particularly in psora, or itch, the surface of the body to be anointed with the ung. sulphuris of the dispensato.

ries, while the powder is exhibited, so as to induce some degree of purging. Without the external application, it proves, indeed, wholly inert. As, however, its use, in this way, is exceedingly disagreeable and inconvenient, several other remedies are, at present, substituted in private practice, which I shall hereafter mention.

While on this subject, I will also observe, that I have found nothing so speedily and completely to cure *tinea capitis*, as an ointment made of an ounce of sulphur and lard each, with an addition of two drachms of *sal. ammoniac*. No cutaneous disease is sometimes more difficult to manage, than this species of eruption. I have known cases of it to baffle the united skill of some of the ablest practitioners. But, since using the above ointment, I have been uniformly successful.

It is perhaps, worthy of recollection, that Rosenstein, a writer held in some esteem, has said, that when eruptions are repelled, they may again be restored to the surface, by the use of sulphur, and, in epilepsy, and other convulsive disorders, brought on in this way, the practice has been found, according to him, exceedingly beneficial.

At one period, and that not very remote, the several preparations of sulphur were among the remedies most in vogue, in the management of catarrhs, asthma, whooping cough, and the rest of the complaints of the chest. The confidence of practitioners was, indeed, so great, in the virtues of the

medicine in these pectoral affections, that it was distinguished by the appellation of *anima pulmonum*, the soul of the lungs. To what extent this high character is deserved, I am not prepared to pronounce, from my present knowledge. Certainly the practice does not want the support of authority, and if we advert to the properties of sulphur, we can hardly be altogether incredulous on the subject. Distinct from its other qualities, it is confessedly diaphoretic, and, perhaps, as much as any article, has the effect of relaxing the surface, which always relieves the lungs.

To alleviate or remove those painful spasmodic contractions of the muscles, denominated cramps, sulphur is much resorted to, and, most generally, it is advised to grasp a roll of brimstone, during the paroxysm. How far this popular expedient is salutary, I will not pretend to say. But I have unquestionably done good in numerous instances, by recommending pads of sulphur to be worn on the part prone to such attacks, while, at the same time, the medicine is taken internally. Not long ago, I had under my care a man, who, for years, had been subject to cramps of the abdominal muscles, recurring several times in the day, and so violently, as to draw him double, attended with a degree of pain, scarcely to be endured. As he had tried almost every other remedy, I suggested the use of the pad, which, while on, always prevented an attack, and on taking it off, the cramps speedily returned. By wearing it,

however, for some weeks steadily, he was completely cured.

The sulphur is a well known remedy in paralysis, and I am inclined to believe, from what I have seen, that it ought not to be disregarded by us. On a former occasion, I dwelt at some length, on the efficacy of purging in this disease. But it does not appear to me, that we are to ascribe all its effects to this property. Many other articles, which much more effectually evacuate the bowels, are not half so useful, and, indeed, I am not sure, whether we do not attain as much, when the sulphur operates not at all as an aperient.

I shall not repeat, here, what I have said under the head of cathartics, of the utility of our medicine in gout and rheumatism. It will be sufficient merely to mention, that, in proportion as I employ the sulphur, especially in the latter disease, my confidence in its powers is strengthened.

Of late, this medicine has been introduced, and with high commendations, into the cure of intermittents. The first notice of this practice which I have met with, is contained in a work on the anomalous fevers of Batavia, by a writer of the name of Grain-ger. It is there stated, that, by exhibiting two drachms of sulphur in brandy, an hour prior to the anticipated return of the paroxysm, it will be altogether prevented. At one time, I was disposed to impute the success of this mixture entirely to the brandy. But a wider experience has taught me

differently. During the two or three last seasons, I saw so many instances of confirmed ague and fever cured by it, that my opinion is wholly changed, and I do now believe, that the sulphur is alone the efficient ingredient. That it is, indeed, is sufficiently proved, by the circumstance of its operating quite as beneficially, when given in milk, syrup, or any other inert vehicle.

Nor is its utility confined to this form of fever: The hectic of phthisis, in which I have used it much, is as promptly suspended by it, as by any course of treatment, with which I am acquainted. Few articles, in short, evince more power over the febrile condition, especially when marked by the *paroxysmal* type, than sulphur. It affords me pleasure, to be enabled to cite the authority of Dr. Physick, in support of this view of the properties of the medicine. Nay, he goes so far as to declare, that, in all fevers of an anomalous or equivocal character, having a tendency to intermit, and where, from the state of the system, the ordinary tonics are inadmissible, he has experienced from sulphur the best effects. The use of the medicine he would even extend to other periodical diseases, and above all, to the affections of the head, of this description, the propriety of doing which I have witnessed, in several cases in my own practice.

GUAIAECUM OFFICINALE.

The guaiacum, or *lignum vitæ*, is a genus of plants, of which there are three species, all natives of the West Indies. The one in medical use, is the *guaiacum officinale*. The wood of this tree, and the gum resin procured by exudation, are the parts employed in medicine. The general properties of guaiacum, are those of a warm stimulant, proving, for the most part, diaphoretic, sometimes, however, diuretic, and even purgative, in large doses. The mode in which the wood is prepared for exhibition, is in strong decoction, of which a quart, or more, may be drank in the course of the day.

Guaiacum was originally introduced, as a remedy in the treatment of lues venerea, and for a long time enjoyed uninterrupted confidence. Before the discovery of the utility of mercury, it was, indeed, among the chief means employed in this disease. But, whatever may be its powers, in relieving some of the symptoms of the secondary stage of the complaint, it is utterly inefficient in syphilis itself. This has long been the settled and concurrent opinion of the ablest practitioners.*

But, though we are compelled to withdraw our

* “ When I have exhibited the decoction of guaiacum in pains of the bones, as they are called, confining the patient, at the same time, to the bed, and enjoining a diet consisting of fluids only, I have rarely seen any beneficial consequences result from the use of it, except where it acted as a sudorific; and, in this respect, I think its qualities manifestly inferior to antimony, or volatile alkali. In several instances, after persisting in a course of it during four or five weeks, I have not gained any

confidence in the anti-venereal powers of the guaiacum, there are, unquestionably, some other purposes to which it may be applied. Besides the minor affections, in which its usefulness is admitted

material advantage; and I have remarked, that when the dolores ostocopi were not connected with some morbid alteration of the structure of a part, this medicine was of little avail. When the strength and vigour has been reduced by a successful mercurial course, with confinement to the house, and where a thickened state of the ligaments, or of the periosteum, remains, or where there are foul indolent ulcers, these sores will often heal, and the enlarged membranes will subside, during the administration of this decoction.

“The decoction of guaiacum will often suspend the progress of certain secondary symptoms of lues venerea, for a short time; such as, ulcers of the tonsils, venereal eruptions, and even nodes; but I never saw one single instance, in which the powers of this medicine eradicated the venereal virus. It has been recommended by many people, to combine guaiacum with mercury, with the intention of improving the specific powers, and of counteracting the injurious effects, of that mineral: the advantages to be derived from this compound mode of treatment, are by no means well established; for guaiacum is certainly no antidote against syphilis; nor have any proofs been given to the public, of its meliorating the action of mercury. When the decoction is given during the mercurial course, it sometimes seems to improve the health; but, as it is very liable to produce complaints in the stomach and bowels, the palpable inconveniences surpass the uncertain advantages connected with it; and, as no previous course of the decoction renders the disease milder, nor authorizes us to rest satisfied with a smaller quantity of mercury than usual, it will seldom happen, that a satisfactory reason can be assigned, for giving the two medicines to a patient at the same time. In concluding this chapter, I would farther remark, that I have given the decoction of guaiacum, with the best effects, to a great number of patients, in cutaneous diseases, in the ozaena, and in scrofulous affections of the membranes and ligaments; and it appears to me, that it is equally efficacious in such morbid alterations, which are not at all connected with the lues venerea, nor with the mode of treating it, as in those cases for which it has been the most highly celebrated.” *Pearson on the Effects of various Articles in the Cure of Lues Venerea, &c.*

by Mr. Pearson, it is a very valuable medicine in several other diseases. But the tincture, of which there are two kinds, the one simple, being merely a solution of the gum-resin* in alcohol, and the other prepared with the carbonate of ammonia, is here universally preferred. The simple tincture I have rarely employed, since, for all purposes where the medicine is admissible, the volatile preparation seems incomparably superior. After arterial action is properly reduced, this is one of our most valuable remedies in rheumatism. The dose, however, in which it is commonly recommended, is wholly insufficient. Not less than half an ounce, and often an ounce, should be prescribed, and the proper time for its exhibition, in these cases, is on going to bed at night. Its effects are very much promoted by copious draughts of any warm beverage. Given in so large a quantity, and with the auxiliary means suggested, it seldom fails of producing diaphoresis, and of affording very essential relief to all the symptoms. But it is sometimes directed in powder, mixed with sugar, in the dose of ten or fifteen grains, to be repeated several times in the day.

In the arthritic affections, the guaiacum has also been used. It was first resorted to in these cases, by a writer, who proclaimed its efficacy in so confident a tone, that it excited for a time, a good deal of attention throughout Europe. But, when it came

* The chemists have, of late, ascertained, that this is not a gum resin, but a *peculiar* substance.

to be more generally tried, these high expectations were not realized, though it is still considered a useful remedy, in some of the irregular shapes of the disease. Wandering gout, not unfrequently displays itself in the stomach, in the form of colic, or some other painful spasmodic affection, and here I have often prescribed it with advantage, to alleviate not only the pending paroxysm, but also as a preventive to its recurrence.

More than once, I have insisted on the close connection which can be traced between a disordered condition of the stomach, and many of the complaints of the eye. Exactly as I enquire, observe, and reflect on this subject, so have I increased reason to confide in the correctness of this view. Every practitioner has probably seen very inveterate cases of ophthalmia, proceeding altogether from a gouty or rheumatic state of the stomach, and which will yield only to remedies addressed directly to this viscus, among which sulphur or guaiacum I have found most effectual. But there is another morbid affection of the eye, of a gastric origin, hitherto not sufficiently noticed, where, though no external inflammation exists, or so slightly as hardly to be perceived, there is great sensibility, with intolerance of light, sometimes very acute lancinating pain through the ball, though, more generally, the sensation is that of a dull, obtuse ache, attended with much heat and aridity of surface, which, whatever may be its nature, is wholly

independent of the cause above mentioned, though it is still very successfully treated by the guaiacum. Cases, such as I have described, are not of very common occurrence. But I have had several under my own care, or in consultation, and never knew one to be cured, or even much benefited, by any means, except the remedy I have just mentioned. The dose of the tincture of guaiacum, under other circumstances than rheumatism, is about a tea-spoonful, three or four times a day.

DAPHNE MEZEREUM.

The mezereon, used in medicine, is the bark of the root of a shrub, called as above by the botanists, which grows wild on the Alps and Pyrenees. It is acrid to the taste, and aromatic in odour, having all the essential properties of guaiacum, and has been converted pretty much to the same purposes in practice. It is a stimulating diaphoretic, and occasionally, also proves diuretic and purgative: is a common remedy in rheumatism, in chronic cutaneous affections, and was formerly employed in syphilis. Its reputation at present, in this latter disease, rests precisely on the same foundation, as the preceding article.*

* “From all that I have been able to collect, in the course of many years observation, I feel myself authorized to assert unequivocally, that the mezereon has not the power of curing the venereal disease, in any one stage, or under any one form.

“If a decoction of this root should ever reduce a venereal node, where no mercury has been previously given, yet the patient will by no means

SMILAX SARSAPARILLA.

Of the sarsaparilla, I have not much to say. When first introduced into the materia medica, it was thought a sovereign remedy in the venereal disease, though, in this respect, it has long since lost its re-

be exempted from the necessity of employing mercury, for as long a space of time, and in as large a quantity, as if no mezereon had been taken.

“With respect to the power it is said to possess, of alleviating the pain, and diminishing the bulk, of membranous nodes, nothing peculiar and appropriate can be ascribed to the mezereon on these accounts; since we obtain the same good effects, from sarsaparilla, guaiacum, volatile alkali, blistering plasters, &c. Nevertheless, venereal nodes which have subsided under the use of any of these articles of the materia medica, will appear again, and often with additional symptoms, if a full and efficacious course of mercury be not submitted to. It has, indeed, been alleged, that mezereon always alleviates the pain occasioned by a venereal node, and generally reduces it, where the periosteum only is affected; and that it seldom fails of removing those enlargements of the periosteum which have not yielded during the administration of mercury.

“That some instances of success, in cases like these, may have fallen to the share of those who make the assertion, it would not become me to deny; but I have met with few such agreeable evidences of the efficacy of this medicine. I have given the mezereon in the form of a simple decoction, and also as an ingredient in compound decoctions of the woods, in many cases, where no mercury had been previously employed, but never with advantage to a single patient. I have also tried it in numerous instances, after the completion of a course of mercury; yet, with the exception of two cases, where the thickened state of the periosteum was removed during the exhibition of it, I never saw the least benefit derived from taking this medicine.

“In a few cases of anomalous pains, which, I suppose, were derived from irregularities during a mercurial course, the mezereon was of service, after I had tried the common decoction of the woods without success; but, even in this description of cases, I have always found it a very uncertain remedy.

putation. Nevertheless, it is still valued as a diaphoretic, and especially by the humoral pathologists, who consider it as a great *purifier of the blood*. It has hence been, and continues to be, much employed in venereal and scrofulous ulcerations, in the herpetic eruptions, in visceral obstructions, in the common and venereal rheumatism, and to restrain the inordinate action of mercury. No doubt, its powers have been exceedingly overrated in all these cases. It possesses some properties analogous to its associate articles, though probably in an inferior degree.* It may be used in the same

“I have made trial of this vegetable in a great number of scrofulous cases, where the membranes covering the bones were in a diseased state, and I am not sure that one single patient obtained any evident and material benefit from it.

“The late Dr. Cullen, whose reports may justly claim attention from all medical men, when treating of the mezereon, in his *Materia Medica*, says, ‘I have frequently employed it in several cutaneous affections, and sometimes with success.’ It were to have been wished, that the professor of medicine had specified what those diseases of the skin were, in which the mezereon was sometimes employed with success: for, if I except an instance or two of lepra, in which the decoction of this plant conferred temporary benefit, I have very seldom found it possessed of medicinal virtue, either in syphilis, or in the sequelæ of that disease; in scrofula; or in cutaneous affections.” *Pearson*.

* “1st. Is the sarsaparilla root, when given alone, to be safely relied on, in the treatment of lues venerea?

“The late Mr. Bromfeild, my predecessor, and, during some years, my colleague at the Lock Hospital, has given a very decided answer to this question: ‘I solemnly declare, (says he,) I never saw a single instance in my life, where it cured that disorder without the assistance of mercury; either given at the same time with it, or when it had been previously taken before the decoction was directed.’

way, and in a similar dose. But it is now more commonly prescribed in combination with various other substances. The sarsaparilla has recently been discovered very abundantly in the western states. That to be had in the shops, is imported from the Spanish West Indies.

"My own experience, during many years, coincides entirely with the observations of Mr. Bromfield. I have employed the sarsaparilla, in powder, and in decoctions, in an almost infinite variety of cases; and I feel myself fully authorized to assert, that this plant has not the power of curing any one form of the lues venerea.

"The sarsaparilla, indeed, like the guaiacum, is capable of alleviating symptoms derived from the venereal virus; and it sometimes manifests the power of suspending, for a time, the destructive ravages of that contagion: but, where the poison has not been previously subdued by mercury, the symptoms will quickly return; and, in addition to them, we often see the most indubitable proofs, that the disease is making an actual progress during the regular administration of the vegetable remedy.

"The nature of that benefit which many persons actually obtain from sarsaparilla, when they are afflicted with the lues venerea, will form a subject of discussion hereafter; in the mean time, I shall proceed to treat the second question, connected with the enquiry before me.

"2. When the sarsaparilla root is given, in conjunction with mercury, does it render the mercurial course more certain and efficacious?

"In replying to this query, it is necessary to observe, that the phrase 'to increase the efficacy of mercury,' may imply, that a smaller quantity of this mineral antidote, will confer security on an infected person, when sarsaparilla is added to it; or, it may mean, that mercury would be sometimes unequal to the cure, without the aid of sarsaparilla. If a decoction of this root did indeed possess so admirable a quality, that the quantity of mercury necessary to effect a cure, might be safely reduced, whenever it was given during a mercurial course, it would form a most valuable addition to our materia medica. This opinion has been, however, unfortunately falsified by the most ample experience; and, whoever shall be so unwary as to act upon such a presumption, will be sure to find his own and his patient's expectations egregiously disappointed." *Pearson.*

LAURUS SASSAFRAS.

Not the least valuable of this class of medicines, is the sassafras. Excepting, indeed, the guaiacum, it is, perhaps, the most so. The sassafras is indigenous, and may be found every where within our territories. The tree, in all its parts, is medicinal. Most generally, however, the bark of the root or the flowers, are selected for the purpose, both of which are highly aromatic, and agreeable to the taste. As a decoction, the sassafras may be taken freely, though the best mode, of prescribing it, is in a strong infusion, with the addition of sugar and milk. Thus prepared, much of it is consumed as a substitute for the cheaper teas, by the poorer people of the country. Endued with the same properties, the sassafras is applicable to all the cases in which the medicines already enumerated are used. Together with these, it enters as an ingredient into the decoctum lusitanicum, or famous Lisbon diet drink.*

* R Rad. sarsaparillæ, ligni sassafras, santal. rubri, guaiac., āā ℥iii., cort. rac. mezereon ℥i., semin. coriand. ℥vi. Coq. in Aq. font. ℔xxx. ad. ℔ . Sumat ℔ss. 100 quater ue in dies. To this formula, some one of the antimonial is sometimes added.

DISCOURSE XXI.

The Subject Continued.

JUNIPERUS SABINA.

As agreeing with the preceding articles, in many of its properties, I shall here introduce some account of the savin. Though not a native, it is cultivated in many parts of the United States, and flourishes well.

Baffled in my attempts to cure some of the forms of chronic rheumatism with the ordinary remedies, I was early led, in consequence of my speculative notions, as to the powers of this medicine, to experiment with it in this disease. During the period which has subsequently elapsed, I have prescribed it very extensively, both in public and private practice. The result of my numerous trials with it is such, that I hope it will not be deemed the language of enthusiasm, when I declare, that I hold it to be entitled to be placed at the very head of the remedies in chronic rheumatism. But, for its successful application, it requires a very nice discrimination in the selection of the proper cases. My enlarged experience with the medicine, has taught me some degree of certainty in its use. It is still, however, not easy, by any general description to im-

part the same sort of *tact* or knowledge. Those who are conversant with clinical practice, must have remarked, that in some of the cases of rheumatism, there is a coldness of the surface, and especially of the lower extremities, which are dry, or covered with a clammy sweat. Connected with this state of the system, we have also an extreme tumefaction and rigidity of the joints, amounting, sometimes, even to the loss of motion, accompanied by pains excessively acute, which are always aggravated by the vicissitudes of weather, and even by the slight exposure, arising from any accidental withdrawing of the covering during sleep. Cases of this description are readily to be met with in all the large receptacles of the sick, and especially in the severer climates, which continue for a great length of time, with no material variation, completely resisting the ablest concerted plan of treatment.

No doubt can exist, of the condition of the parts, under such circumstances. It is manifest, that the circulation is carried on languidly, from the debility and exhaustion of the extreme vessels, by which they are thrown occasionally into spasms, whenever, indeed, external heat, or internal stimuli, do not contribute to invigorate their action, and support the natural tone. That the pain, in this case, is produced by a species of irregular convulsive motion, and not by inflammation, is very conclusively proven, by the well known and universally acknowledged fact, of the complaint never going off by any

one of the usual terminations of this latter process. The joints in rheumatic limbs will often appear puffed, or swollen, for several months in succession, without effusion, suppuration, or scirrhus taking place in the slightest degree.

Conformably to the pathological view which I have presented, is my practice. No one, in this case, thinks of cold or other applications of similar tendencies, but, on the contrary, every practitioner, whatever may be his theoretical notions, concurs in recommending the very opposite course. By the common consent of all, the treatment is made to consist of the various vesicating or rubefacient remedies, while we endeavour to rekindle the general excitement, by pouring in camphor, ammonia, turpentine, cantharides, the seneka, the arum, the mezereon, the sarsaparilla, the guaiacum, with an infinity of combinations, of which opium constitutes the basis.

Endued with properties, such as it was alleged to possess, it was reasonable to presume, that the savin would prove eminently serviceable in the precise form of rheumatism which has been described.

The primary effects of the medicine, or, at least, its sensible effects, are, to heat and stimulate the whole system, producing particularly, a glow on the surface, with much itching, and now and then miliary eruptions, with sometimes a slight perspiration, which, however, seems to be extorted by the mere force of excitement. The pulse, which,

previously to the exhibition, of the medicine, is commonly small, weak, and accelerated, now becomes full, active, and comparatively slow. No portion of the body seems, indeed, to escape its wide pervading operation, every function being more or less invigorated, and especially some of the secretory offices, as the urinary, the catamenial, and, perhaps, the seminal.

Contrary to a very uniform law of the animal economy, by which it seems to be ordained, that the vigour of the arterial and lymphatic apparatus should be in an inverse ratio, we have here indisputable evidence, in the speedy removal of the chalky dispositions, and of the various morbid growths incident to the disease, of absorption being actively promoted. After some days continuance of the savin, either from the mitigation of the disease, or the positively tonic power which the medicine exerts, the situation of the patient is very considerably improved, as relates to his strength, appetite, rest, and general sensations.

Encouraged by the success which attended the remedy in the preceding description of cases, I have been induced also to apply it to the cure of what is denominated syphilitic rheumatism. The difficulty often experienced in the management of this form of the disease, is universally confessed. My conviction is, that hitherto we have entertained very wrong views, as to the nature of this obstinate and distressing affection. To me, there is

the strongest reason to suspect, that, instead of proceeding from a remnant of venereal contamination, it has its cause in the abuse of mercury. Nor am I singular in this opinion, though I take to myself the credit of having first promulgated it in this city, and of most steadily acting upon it in practice. But either view of the case warrants the remedy. Even those practitioners who retain the ancient prejudices on the subject, conduct the cure of the disease chiefly by medicines of nearly similar properties. It was, indeed, by this very analogy, that I was originally led, in some measure, to extend my prescription of the savin, and the advantages which I derived from it were so conspicuous, as fully to confirm all my anticipations.

Few persons, perhaps, are more sensible than myself, of the delusions which naturally arise with respect to new remedies. The sources of error here, are numerous, and so seductive, that an entire escape from them rarely happens. It is possible that I also, may be deceived in the present instance, and have stated too strongly the powers of this medicine. But so far am I from believing it, that I shall venture the prediction, that, at no distant period, all my observations will be established, and the medicine enhanced, by a more extensive practical application of it.

Already, indeed, do I learn, that the savin is prescribed in gout. By professor Hufeland, one of the most distinguished men now on the continent of

Europe, who seems to have introduced it on this occasion, we are told, that it imparts tone to the alimentary canal, and removes the nausea, acidity, and flatulence, incident to the atonic state of the disease. Nor is it, according to him, less useful in the arthritic head-ache.

By some other practitioners, it is recommended as having done good in podagra, or regular gout, averring, that it alleviates the pain, and breaks the force of the paroxysm. Of my own knowledge, I can say nothing of its efficacy under such circumstances, though I should presume it to be a very inappropriate and hazardous remedy. To rheumatic gout, a mixed state of disease, it will probably be found to be better suited.

In no application of the savin which I have hitherto made, was I able to perceive any immediate advantage from it. The system must be fully under its impression, before the disease begins to yield, even in a slight degree. Commencing with twelve or fifteen grains of the powdered leaves, three times a day, my rule is, gradually to increase the dose, till some positive effect is manifested, to produce which, three or four times the quantity I have mentioned, are sometimes demanded. Nor ought we too suddenly to withdraw the medicine in despair of its being useful. To accomplish a cure of protracted rheumatism, especially, it must be continued for several weeks. No matter how trivial the improvement from it may be, at first, we

should not be discouraged. The extraordinary success which I have seen result from the long and steady exhibition of the medicine, entitles me to recommend, very confidently, an imitation of the same course.

Of the external means of producing Perspiration.

By simple friction, long continued, the exhalents may be made to pour out a pretty copious discharge. But the usual means to effect this purpose is heat, applied either through a dry or moist medium. By the ancients, a vast deal of refinement was introduced into this process, and among the Oriental, as well as some of the European nations, even now, it constitutes one of the most expensive luxuries. These splendid establishments contain, or did contain, a series of contrivances, by which temperature might be conveniently graduated to every exigency. But, we claim no such arrangements, and are content, for this purpose, with a few simple means, exceedingly rude and defective. It is the common practice, where we wish to induce sweating by stimulating the surface, to resort to heated bricks, or bottles filled with boiling water, which are put to the soles of the feet, or some other portion of the lower extremities. Co-operating with these, the patient is covered with more than an ordinary quantity of clothing, and warm beverages are liberally exhibited.

In cases demanding a prompt and profuse diaphoresis, the local applications I have mentioned, should also be placed between the thighs, on each side of the trunk, and under the arm-pits, the effect, in this way, being greatly increased. It will, however, sometimes, be found more convenient to substitute in place of the bricks or bottles, bags, filled with hot salt, or oats, or sand, or ashes. These are readily accommodated, on account of their softness and flexibility, to the shape and contour of the part, and of course, prove infinitely more comfortable, and are especially adapted to relieve topical pains.

By some practitioners, vapour or steam is directed in the place of dry heat, and, in the inflammatory cases, it is thought both safer and more efficacious. Of this, indeed, there can be little doubt, and under such circumstances, ought always to be preferred. The cases in which this application is more particularly useful, are the incipient stages of inflammatory fever, and in all other states of the system, where sweating is indicated, though the propriety of inducing it by stimulating medicines, may be questionable. Nor is it less easy of attainment. There has lately been invented a very simple machine for the purpose. But if this cannot be had, we shall do very well by pouring vinegar on hot bricks, and while the vapour is escaping, to introduce them, wrapt up in flannel, under the bed clothes. Three or four applications of this sort,

will very speedily cause a relaxation of the surface, and bring out an abundant diaphoresis. Nearly the same effect is occasioned by immersing the whole body in a bath, the temperature of which should be so high as to produce a decided sensation of warmth. The natural temperature of the human species is about ninety eight degrees, but, owing to the cooling process constantly taking place on the surface, it is here considerably lower, and hence we feel the sensation of warmth, at several points below animal heat. It is this circumstance, which renders it difficult to adjust a precise standard, though, perhaps, we may not err much by fixing it from ninety-two to ninety-six degrees.

A bath of this description, is unequivocally stimulant, increasing the force and activity of the circulation, and particularly in the extreme vessels, rendering them full and turgid, and inducing a state of redness approaching to inflammation. These primary effects, however, are counteracted, in some degree, by the relaxation and perspiration which speedily follow, and to promote which, the patient, after being carefully wiped dry, is to be replaced in bed, and to take some warm drink, such as any one of the various herb teas, or lemonade, or wine whey.

From the extensive sentient surface exposed to the impression of this remedy, it must be productive of very positive effects, and hence is prescribed in a variety of cases. But, owing to the intimate connection subsisting between the alimentary canal and the

surface of the body, it has been found more especially useful in the affections of the stomach and bowels, whether of an acute or chronic nature. Few remedies are, perhaps, more resorted to in the spasmodic affections of the intestines, and by no means unfrequently in enteritis, cholera, and dysentery. The inordinate irritability of the stomach in gastritis, is sometimes allayed by the warm bath, and its efficacy is fully attested in several of the forms of dyspepsia, and not less so in the atonic fluxes. Nephritis affords another instance in which the remedy is greatly employed, and I may add, dysmenorrhœa, or partial and difficult menstruation, as being very often relieved by it.

Of the chronic complaints to which it is most applicable, the weaker states of rheumatism, and paralysis, may be named. Each of these cases is marked by a great deficiency of temperature, a pallid skin, and other evidences of a debilitated circulation, and here the power of the bath may be improved, by adding to it salt, mustard, or Cayenne pepper, as well as by raising its temperature several degrees higher than the point I have mentioned. Nor should frictions afterwards be neglected.

Efficacious, however, as the warm bath proves to be, under the preceding circumstances, in adults, it is infinitely more so, when applied to children, and may also, in them, be more safely extended to the treatment of the febrile, and indisputably so to the convulsive affections, being here very generally followed by tranquility and sleep.

But it often happens, that a bath cannot be procured, and when this is the case, a pediluvium or semicupium is the ordinary resource. Even this partial bathing is salutary, both as a diaphoretic, and as a means of exciting a counteraction, and especially in some of the chronic complaints of the head. The utility of it, when directed with this view, may be greatly heightened by dissolving in the water any of the stimulant articles recently mentioned.

To some cases, a bath of less warmth than the one I have mentioned, is better suited. This is called a tepid bath, and is generally directed of the temperature of about ninety degrees, though from the different susceptibilities of persons, this cannot be definitely fixed. It will hence be right, always to consult the feelings of the individual, and so to regulate it, that it may impart a slight, but an agreeable sensation of warmth. In the chronic affections of the skin, as the herpetic and leprous cases, this sort of bathing is mostly prescribed. It is, however, admirably calculated to recruit the energies of the system, when exhausted by fatigue or watchfulness, and has sometimes been found not less advantageous, in some forms of protracted rheumatism, gout, paralysis, chorea, and other convulsive or spasmodic complaints.

But, though the application of heat to the surface, in the mode which I have described, will very generally excite sweating, it does not do so uni-

formly. There are, indeed, circumstances, in which it is ascertained rather to impede, than facilitate this process. This is most conspicuously the case in the early stage of typhus fever, in scarlatina, not to mention other diseases. These cases are attended by great heat of the surface, which is aggravated by all the means I have enumerated, as designed to create perspiration, and to reduce the animal temperature. In this state of the system, cold will more effectually remove the constriction of the cutaneous vessels, and is, therefore, the appropriate remedy. The ancients were well acquainted with this fact. Celsus speaks of directing large draughts of the coldest water in ardent fevers, and dwells with great emphasis on the highly beneficial consequences. "The patient," says he, "falls into a sound sleep, the heat remits, and a free perspiration ensues, though he had previously suffered much from thirst, heat, and restlessness." In the fluctuations of medical opinion, this practice seems to have been rejected, or at least lost sight of for many centuries. Nearly a hundred years ago, however, an attempt was made to revive it by a writer, who entertained such extravagant notions of its efficacy in the inflammatory fevers, that he denominated water the *febrifugum magnum*. But the remedy did not gain much ground, antecedently to the appearance of the celebrated work of Currie, since when its utility has been fully confirmed by the concurrent experience of many of the most distin-

guished practitioners in various sections of the world.

As yet, I suspect this mode of treating disease has not been very generally adopted in the United States, certainly not to the same extent as in Britain, and her colonial dependencies in the East and West Indies. This may, in part, be owing to our attachment to the lancet, and other directly depleting remedies, which, to a certain degree, operate in a similar way. Nevertheless, I am persuaded that we have not done justice to the practice. By some of us in this city, cold ablutions are sparingly used in our autumnal fevers, to allay the heat of the skin, and ice is habitually applied in all the inflammatory attacks of the head. Not more is done with it by us. But in the European hospitals which I attended, nothing was more common than to see patients, in the early stage of typhus fever, placed under a shower bath, or to have water dashed upon them, and nearly the same course was pursued in scarlatina, and in the whole of the complaints, in short, where a heated surface exists. The effect most commonly, was a free perspiration, followed as is usual, by highly beneficial tendencies.

But a remedial process so active as this, must not be rashly or indiscriminately employed. The precautions required to be observed in its use, have been very clearly indicated in the work to which I have alluded. It is said by Currie, that affusion with cold water may be resorted to,

“ whenever the heat of the body is steadily above the natural standard, when there is no sense of chilliness, and especially when there is no general or profuse perspiration,” to which, however, must be excepted, the cases attended with much local congestion, and particularly of the lungs. The principle on which he supposes the remedy to act, is merely by the abstraction of the excess of heat from the surface. But, a very different view has been taken of this point, by Dr. Jackson, a writer who, if he is sometimes seduced into apparent extravagance by an ardent enthusiasm, is eminently distinguished by the force and originality of his opinions in theory and practice.

Cold applications to the surface, he maintains, on the contrary, are a power making a strong and general impression on the system, by which the existing morbid actions are subverted, or essentially changed, and which, according to him, is effected independently of the reduction of temperature. In prescribing the remedy, all which he insists upon, as important to be attended to, is, what he calls the *evidence of a susceptible condition*, and where this is wanting, he attempts previously to restore it by frictions, the warm bath, &c. Considering also, a very highly excited or inflammatory state of the system as not well suited to the remedy, he advises venesection, and other evacuations, as preliminary measures.

Directed in the use of these applications by the

precepts of Currie, I have not ventured, on any occasion, to imitate a different course, though never for a moment have I believed, that the remedy operates simply by lessening the heat of the skin.

Cold water applied to the surface, is prescribed in the shape of ablution, aspersion, or affusion, and the cases to which these several modes are best adapted, will occur to the practitioner, without any precise designation. But in closing these desultory observations, I cannot forbear to recommend, in the strongest terms, an attentive perusal of the writings of Currie and Jackson, on this subject.

END OF VOL. I.

